A STUDY TO ASSESS THE EFFECTIVENESS OF ACUPRESSURE ON BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES MELLITUS AT ASHWIN HOSPITAL, COIMBATORE.

By

Reg. No:301411105

A DISSERTATION SUBMITTED TO THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING.

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CHAPTER I

INTRODUCTION

“Health that is real wealth and not pieces of gold or silver”

-Mahatma Gandhi

Good health is a prerequisite to human productivity and development process. Health is vital for ethical, artistic, material and spiritual development of man. Good heath is a basic right and produces civic consciousness. WHO stated that health is a complete physical mental and social wellbeing and not merely the absence of disease or infirmity.

A state of poor health or imbalance in normal health is illness. Illness is sometimes another word for disease. As the world’s population rises, the chronic disease will continue to grow and the need for treatment also increases.

Encouraging people to adopt healthy life styles and appropriate coping strategies are the key aim in health promotion. Diabetes is a chronic condition associated with abnormally high levels of sugar in the blood. The defects in insulin secretion, or action, or both will result in this condition (Zhang, 2015).

Complementary and alternative medicine is a "group of diverse medical and health care systems, practices, and products that are not generally considered to be part of conventional medicine. Complementary medicine is used with conventional medicine, whereas alternative medicine is used instead of conventional medicine.

Acupressure is one type of complementary medicine that is used to treat several illnesses. Energy therapies have been proved to be useful aid in improving health and wellbeing. Acupressure is an energy therapy that assists individuals with diabetes in reaching goals for normoglycemia and high quality of life (Thiruvelan, 2015).

Patients often manage diabetes poorly during acute illness. The challenge of diabetes mellitus in a developing country like India is assuming a serious magnitude. At the same time the changes in lifestyle and increase in lifespan is adding to metabolic diseases, thereby doubling the disease burden of the population (Ahuja, 2014).

Chinese medicine owes its current status to the long history of its practice, dating back more than 2,000 years in a form similar to that utilized today. In one of the oldest books about Chinese medical theory, the Huangdi Neijing, compiled around 100 B.C., the condition diabetes or diabetic exhaustion was mentioned. The literal translation of the term is emaciation-thirst, referring to the disease manifestation when it has gone untreated: namely, one loses body weight despite eating normally, and thirst is persistent. According to this ancient text, the syndrome arises from consuming too much fatty, sweet rich food which occurs commonly among wealthy people. The description fits that of non-insulin-dependent diabetes mellitus (Dong, 2014).

In type 2 diabetes, there is a steady decline of beta cells that adds to the process of elevated blood sugars. Essentially, when insulin is resistant to someone, the body will try toincrease production of insulin and overcome the level of resistance to some extent.

After time, when production decreases and insulin cannot be released as vigorously hyperglycemia develops (Avachat, 2013).

Acupressure therapy is an effective non pharmacological adjunctive strategy for alleviating the development and progression of Type2 diabetes mellitus related complications such as hyperlipidemia, nephropathy, neuropathy and retinopathy (Jin & Chen, 2013).

For patients with diabetes mellitus the blood sugar levels are highest oneto two hours after the diet and then it decreases. This change in blood sugar level is reduced among those who take taking several small meals. Taking healthy diet at regular times, with the same amount of carbohydrates in each meal has a greater effect on blood sugar levels. Physical activity is another important part. Regular physical activity improves the body's response to insulin. Keeping exercise schedule and checking the blood sugar levels before, during and after the exercise plays an important role in self care management of diabetes (Mathuri, 2013).

Energy blockagesfrom stress, trauma, or an injury, are traced to the root of all health problems. The energy flow is based on how a person feels, think, and breathe. Just as negative thoughts can block energy flow, positive thoughts can increase healing energy. When the body's life-force energy becomes blocked, various emotional imbalances and physical symptoms also result. These energy blockages occur at the acupressure points. Through a variety of acupressure methods ranging from light touch,

tapping, to simply holding the points, the body's life energy is able to flow and can be rebalanced (Lena & Margaret, 2012).

Insulin, a hormone secreted in the pancreas controls the blood glucose level. When the blood glucose elevates, insulin is released from the pancreas to normalize the glucose level. Among patients with diabetes, insufficient production of insulin (either absolutely or relative to the body's needs), production of defective insulin (which is uncommon), or the inability of cells to use insulin properly and efficiently leads to hyperglycemia. This latter condition affects mostly the fat tissues and muscles and results in a condition known as "resistance". This is the primary problem in type 2 diabetes (Kang, 2011).

Every patient suffering from diabetes agrees that there is no cure for diabetes. However, people who have undergone acupressure treatments for their diabetes will disagree. Acupressure uses the different pressure points in the body to improve a person's health. It had cured or decreased the severity of their diabetes. It has been seen that when acupressure treatment is added to diet and exercise, the need of medicines diminishes considerably for diabetic patients. In quite a few cases, medicines were also discarded altogether (Feng & Fen, 2011).

Diabetes mellitus, commonly referred to as diabetes was first identified as a disease associated with "sweet urine," and excessive muscle loss in the ancient world. Since, the elevated levels of blood glucose lead to spillage of glucose into the urine, the

term is used. The warning signs of diabetes includefeeling shaky, weak, confused,lightheadedness, irritability, anxiousness, tiredness or feeling hungry (Sheil, 2010).

NEED FOR THE STUDY

The United Nations estimates the number of people globally affected with diabetes as 246 million and approximately half of those are in India, China, and Nepal and in other Asian countries. Globally, Diabetes is ranked as the fourth leading cause of death, in India in terms of disease. Each year, an estimated 3.8 million death occurs from diabetes related causes, such as cardiovascular disease, stroke, diabetes associated kidney dysfunction, diabetes associated nerve dysfunction and diabetes associated eye disorder.

Acupressure will alter the brain chemistry and releases neuro transmitters and neurohormones in a good way. It also affects the parts of the central nervous system being connected to sensation and involuntary body functions, such as immune reactions and processes thereby a person’s blood pressure, blood flow and body temperature are regulated (Griffitus, 2013).

There is no cure for diabetes in allopathic system of treatment, but alternative therapies like acupressure offers prevention and cure possibilities. People who have undergone acupressure for diabetes healingfind improvement in blood glucose level after acupressure treatment. So acupressure plays a significant role in reducing the blood sugar level among patients with Type2 diabetes mellitus (Khan, 2012).

Acupressure has a high electrical conductivity at the surface of the skin and thus has a healing energy effect. Acupressure treatments help the body organs to correct imbalances in digestion, absorption, and energy production of activities and in circulation of the vital energy through the meridians. This improved energy and biochemical balance achieved by acupressure encourages the body's natural healing abilities and promote physical and emotional wellbeing (Chezhiyan, 2012).

Acupressure therapy is an effective non pharmacological adjunctive strategy for alleviating the development and progression of Type 2 diabetes related complications such as hyperlipidemia, diabetes associated kidney dysfunction and neuropathy (Bethesda, 2012).

In Tamilnadu, 9% prevalence of known diabetes was found among a population of 150.One of the major causes of diabetes cited among the urban people was lack of the required physical activity. Diabetes and obesity rates just keep climbing at an alarming pace in these cases (Senthilnathan, 2011).

People with diabetes require multiple interventions to reach their glycemic goals. Energy therapies are useful aids in improving health and wellbeing.Energy therapies like acupressure assist individuals with diabetes in reaching goals for normoglycemia and high quality of life (Guthrie, 2011).

Acupressure therapy is effective in relief of stress related ailments and boosting immune system. Acupressure increases circulation, reducespain, develops spirituality and vibrant health. When acupressure points are stimulated they release muscletension, promote circulation of blood and enhance body's life force energy to aid healing (Pilana, 2011).

Patients with complications of diabetes require additional and continuing expenses for specialized care. A recent analysis has showed theaverage expenditure for diabetes in India to be Rs.28, 000/annum in sub urban areas and Rs.20, 000/annum in rural areas (Ling, 2011).

India has the world's largest diabetic population with almost 51 billion people suffering with the condition and the cost of diabetic management is getting increased since day by day. As the cost of the diabetic management is becoming higher the households of lower income family group are facing much difficulty to manage the condition. This makes the public to turn more and more to alternative therapies to manage the condition (WHO, 2010).

Acupressure maintains the functioning of the central nervous system improves blood circulation and metabolism, enhances the recovery and regeneration of damaged tissues of the lesion.After acupressure therapy, most patients experience a relief of symptoms, a comfortable and relaxed feeling, sound sleep, improved appetite and increased body weight. However, some patients feel a sense of discomfort for a shorter

period. In general, it is only a temporary response to the treatment and will disappear after the treatment is continued for 2-3 more days. An explanation is necessary to relieve the patients worry about the temporary setback (Watson, 2010).

Type 2 diabetes is an illness that gradually forms over a long period of time, which can be 20 years or more. It might not bring any obvious serious pain or discomfort in the first 10 years, but when one of the vital organs (usually kidney first) starts to fail, the other effects begins. The malfunction of one organ can speed up the damage to other vital organs and it will take away one's life in less than 2 years since the occurrence of first serious disorder (Brunner& Sudharth, 2005).

Realizing this fact, the investigator instituted the acupressure therapy to reduce blood sugar level among patients with type 2 diabetes mellitus as a non-pharmacological measure

STATEMENT OF THE PROBLEM

A STUDY TO ASSEESS THE EFFECTIVENESS OF ACUPRESSURE ON BLOOD SUGAR AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS AT ASHWIN HOSPITAL, COIMBATORE.

OBJECTIVES

1) To assess the blood sugar level among patients with type 2 diabetes mellitus.

2) To apply acupressure among patients with type 2 diabetes mellitus.

3) To evaluate the effectiveness of acupressure among patients with Type2 diabetes mellitus.

HYPOTHESIS

The acupressure has a significant difference on reducing the level of blood sugar among patients with type-II diabetes mellitus in experimental group than inn control group.

OPERATIONAL DEFINITION

A: **EFFECTIVENESS**

It refers to the desired change on blood sugar brought after the acupressure and is measured in terms of reduction in the level of blood sugar for patients with Type2 diabetes mellitus.

B: **ACUPRESSURE**

It refers to the application of acupressure over the acupoints Spleen 6, Liver 3, Kidney 3 & Stomach 40 for 5 minutes on each acu point located on the leg twice a daily for reducing the blood sugar level.

C: **BLOOD SUGAR**

The concentration of glucose in the blood, measured in milligrams glucose per 100 millimeters of blood, which is measured by glucometer. Patients who are diagnosed to have type-II diabetes mellitus, whose fasting blood sugar will be more than 120 mg/dl.

D: **TYPE 2 DIABETES MELLITUS PATIENTS**

Patients diagnosed with Type2 diabetes mellitus aged above 45 years, with random blood sugar ranges above 140 mg/dl who are admitted in Ashwin Hospital.

ASSUMPTIONS

- Diabetic client can control their glycemic level through methods of alternative therapy.
- Diabetic client are ready to accept the acupressure therapy.

CHAPTER - II

REVIEW OF LITERATURE

“Every human being is the author of his own health or disease”

-Budha

The review of literature is defined as a broad, comprehensive, systematic & critical review of scholarly publication, unpublished materials and personal communication. It helps the researcher to develop insight into problems stated. The present chapter discusses the review of literature pertinent to the study. The literature review is discussed under the following headings.

- Literature related to comprehensive view of Type 2 diabetes mellitus
- Literature related to acupressure
- Literature related to the effectiveness of acupressure on blood sugar.

LITERATURE RELATED TO COMPREHENSIVE VIEW OF TYPE II DIABETES MELLITUS

A study was conducted among diabetes patients to know the severity associated with complications of diabetes. Totally, 30 samples were selected using purposive sampling method. The results revealed that, as time progresses high blood glucose levels damages nerves and blood vessels, leading to complications such as heart disease and stroke, which is the leading cause of death among people with diabetes. Uncontrolled diabetes also results in vision loss, kidney failure and amputations (Thomas, 2014).

A longitudinal study examined the influence of family, social and behavioural variables on diabetes self care management. Self efficacy, maturity, family, social support and attitudes of adults towards management of diabetes were assessed among 87 adults at 3 weeks, 6 weeks and 9 weeks intervals. The results revealed that 75% of people faced difficulty and barriers in setting goals for improving diabetes management practices and coping up with the life style changes (Shang, 2012).

A study was conducted on assessing the effectiveness of Inj. Lucentis, Inj. Trivaris and Laser therapy among patients who were affected with retinopathy due to severity of diabetes. One group received Inj. Lucentis along with laser treatment. Another group received Inj. Trivaris which is a steroid drug along with laser treatment. The results revealed that patients who underwent Laser therapy plus Inj. Lucentis showed improvement in vision after 4 weeks of treatment when compared to the other group (Khan, 2012).

India has initiated its defence against diabetes with an initial investment of 1430 crores to start the process of prevention and treatment of diabetes. The country aims to screen 150 million people with diabetes around 2012. Indian companies have played a significant role in getting affordable medicines and technologies from countries around the world and advocated increased access to drugs and alternative therapies for managing diabetes. This resulted in easy access to affordable, newly developed medicines and alternative therapies (Ling, 2011).

A descriptive study was conducted to know the quality of life, wellbeing, social support & coping strategies among patients with diabetes mellitus. When quality of life was assessed in individuals with diabetes mellitus and with impaired glucose tolerance, more subjects with impaired glucose tolerance rated their general perceived health as being excellent to good (83.49%) than to diabetes mellitus (72.25%). Similarly education about primary prevention among family members of patients with Type 2 diabetes resulted in improved awareness about personnel risk, but did not cause psychological harm (Moyses, 2011).

A study was conducted on 'economic cost of diabetes care' with the objective of assessing the present state concerning the treatment of clients with diabetes and cost figures in rural and urban parts in Bangalore. A random unbiased selection of 620 respondents was taken for the study. The conclusions suggest the importance to develop simple cost – effective protocol for managing the condition (Giffany, 2011).

A comparative study was conducted among people with diabetes and those who were non-diabetic on risk of developing heart diseases. The results revealed that people with diabetes are at higher risk to develop heart diseases or stroke at an earlier age than others (Bawadi, 2011).

A study was conducted among 50 samples on the influence of smoking in diabetes .The results revealed that smoking among diabetes doubles the risk of developing heart disease. This is because smoking causes narrowing of blood vessels and

results in long term complications such as vision loss and peripheral arterial disorders (Miller, 2011).

The information from the statistical review of WHO revealed steps to reduce the risk of developing diabetes. They suggest that healthy diet, physical activity, ideal body weight and quitting of smoking plays a significant role in risk reduction (WHO, 2010).

A prospective diabetes epidemiological study was conducted in UK on management of hypertension among adults with diabetes. A 10mm Hg reduction in mean systolic blood pressure resulted in reduction in 12% of complications related to diabetes, 15% of deaths related to diabetes, 11% of myocardial infarction and13% of micro vascular complications (Rovner, 2010).

LITERATURE RELATED TO ACUPRESSURE

Applying gentle pressure on precise acupoints called acupressure is believed to stimulate the central nervous system to release chemicals into the muscles, spinal cord and the brain. These chemicals release hormones that influence the body's natural healing abilities and promote physical and emotional wellbeing. Thus the blood sugar level normalizes without any negative side effects, but with positive effects (Tonja, 2015).

A study was conducted in Taiwan for assessing the effectiveness of acupressure in relieving low back pain. For the study, 130 patients with chronic low back pain from a specialist orthopaedic clinic were selected. All the patients completed a standard disability questionnaire before being randomly allocated to 2 treatment groups. Among

the 130 patients, 65 patients received 6 sessions of acupressure and 65 patients received physical therapy. Results were analyzed immediately after treatment & again after 6 months. The mean disability score after the treatment was significantly lower in the acupressure group (5.67 than in the physical therapy group (11.29).So the study concluded that acupressure is very effective in reducing back pain (Jones, 2011).

A study was conducted among 44 subjects diagnosed with chronic obstructive pulmonary disease from 3 regional hospitals in Taiwan. A randomized block experimental design was used for selecting the samples and data collection was done. Using age, gender, pulmonary function, smoking history and taking steroid treatment as matching factors, 44 subjects were randomly assigned to two groups. The first group received acupressure on specific acupoint (K7) and the second group received acupressure other than the specific acupoint. The results revealed that the group receiving acupressure on K3 was relieved from dyspnea and it also enhances circulation. Both acupressure programs lasted 1 week with 14 sessions / wk that lasted 20 minutes per session. Results concluded significant greater improvements among patients receiving acupressure at specific acupoints (Benhar, 2012).

A study was conducted to assess the relative merits of applying acupressure among a group of stroke patients. A specific form of acupressure known as Jin Shin was used in 16 stroke survivors who participated in the study. In the course of 2 weeks, the volunteers of the study received Jin Shin acupressure. A consistent benefit in relation to heart rate was found during Jin Shin intervention. The study concluded that active

acupressure, reduced heart rate significantly more than did placebo acupressure during treatments (Gardner, 2012).

A study was conducted in the National Institute of Oncology to know the effect of acupressure as a valuable tool for patients undergoing treatment for cancer. A wrist band that stimulates Neiguen (P6) acupoint was applied to 34 patients undergoing chemotherapy who were suffering with the complaints of nausea and vomiting.The results showed a decline in severity of nausea and reduction in vomiting episodes among cancer patients after acupressure (Benson, 2013).

A study was conducted in Taiwan to assess the effect of acupressure for insomnia. A total of 50 men & women with insomnia were selected as participants in a randomized controlled trial. Half of the study volunteers were provided with standard acupressure on HT1 points of both wrists. The control group received only light touch at the same wrist acupoint. The duration of the study was 1 week & researchers utilized Athens Insomnia scale and patient Questionnaires as a means of quantifying pre-test and post-test sleep quality. The study concluded that acupressure was effective in reducing insomnia (Nina, 2011).

A comparative study was conducted in Department of Rehabilitation, Kaohsing Medical University in Taiwan to determine the efficacy of medications versus acupressure among 28 patients with chronic headache. Baseline measures of self-appraisal scores and headache related quality of life were documented at the beginning of the study after 1 month of treatment. Pain ratings based on visual analog scale was found

to be significantly lower in acupressure group. The study concluded that acupressure can be used as an alternative therapy for conventional medicine (Farton, 2010).

A study was conducted in Mexico State University on the effectiveness of acupressure among nurses who are continuously exposed to stressful environment. Twelve samples were chosen for the study. One group pretest – post test design was used. The results concluded that there was an overall reduction in anxiety, headache, work stress and anger after the acupressure therapy (Niyx, 2013).

LITERATURE RELATED TO EFFECT OF ACUPRESSURE IN TYPE II DIABETES MELLITUS

A study was conducted to assess the effectiveness of acupressure among patients with Type 2 diabetes mellitus. For the study 28 patients with type 2 diabetes who were undergoing treatment with standard diabetic medications were selected. The samples were randomly assigned into experimental group and control group. The experimental group received 20 minute session of acupressure therapy 2 times / day and the control group received hypoglycemic agents as treatment. Before the intervention, the blood sugar level was assessed using glucometer. The acupoints were Sp6, St40, K3 and Liv3.

SP6 (Spleen meridian)

Location: On the inside of the lower leg, one hand width (4 Fingers) above the tip of the ankle bone. LIV3 (Liver meridian)

Location: On the foot on the line between the big toe and the second toe. The point is located about 3 finger width from the edge, in the depression. K3 (Kidney meridian)

Location: On the inside of the foot, half way between the Achilles – tendon and the ankle bone. ST40 (Stomach meridian)

Location: On the anterior aspect of the lower leg, 8 Fingers superior to external malleolus.

The intervention time was selected two hours before and two hours after the meals and medication. The blood sugar was assessed before and after the intervention. At the end of one week study, the blood sugar results showed comparative reduction in the experimental group when compared to the control group. The study concluded that acupressure is effective in reducing blood sugar level among patients with Type 2 diabetes (Leander, 2011).

A study was conducted to know the effectiveness of acupressure among patients with type 2 diabetes in Singapore. The researchers recruited 60 patients with diabetes and divided them randomly into two groups: the acupressure group (38 patients) and the control group (22 patients). The two groups were found to be well matched for symptoms and laboratory results (blood and urine tests). Both groups followed a regulated diet during the study, but one group received acupressure. Acupressure was administered twice a day for 7 days. The main acupressure points used were SP-6, ST-40, LIV-3 and K-3.The results shows that there was considerable reduction in the blood sugar in the experimental group when compared to the control group (Hson, 2012).

A study was conducted to know the Modern Clinical Necessities for Traditional Chinese Medicine-Acupressure in Beijing. The acupoint sanyinjiao (SP-6) was used as the primary treatment, with adjunctive points according to syndrome differentiation for 30 patients with diabetes. Among that, the common adjunct points were sanjiaoshu (Liv-3) for thirst and dryness of the mouth; zusanli (ST-40) for hunger; and shenshu (K-3) plus sanyinjiao (Sp-6) for polyuria. Treatment was administered twice daily for 7days as a course of treatment, then a 2-3 day break was allowed before starting another course upto 7days. The results show that the effectiveness of treatment was better for younger patients than for older patients (Wang, 2012).

A study was conducted to assess the effects of acupressure on lower limb blood flow for treatment of peripheral arterial diseases associated with diabetes. A total of 30 patients were selected in which 24 underwent acupressure. The acupoints were Sp-6, Liv-3, K-3 and St-40.The results found that this treatment modality is effective for treating the symptoms associated with peripheral arterial diseases and thereby treat diabetes (Nikonenko, 2010).

A study was conducted on treatment of diabetic neuropathy using Integrative Chinese and Western medicine in China. Post-test one group only design was used for the study. The results showed that acupressure was effective in reducing the free radical injury, whichplays a key role in pathology of vascular complications in diabetic neuropathy (Chin, 2011).

A study was conducted in Mexico State University on ‘A short stress relieving programme with acupressure to lower the blood sugar level and improve health in diabetic patients’. The intervention consisted of 15 minutes of acupressure with the goal of reducing the blood sugar level. Exploratory research study was conducted with one group-pretest posttest design. All the patients experienced an overall reduction in blood sugar. The result of the research supports the need to integrate holistic health concepts and practices into rural health care systems (Gerald, 2010).

A study was conducted on Acupressure for diabetes in Mexico. The results had revealed that applying acupressure to the specific acu points such as Sp-6, K-3, Liv-3 and St-40 will stimulate the central nervous system to release chemicals into the muscles, spinal cord and brain. These chemicals release other hormones that influence the body’s natural healing abilities and reduce the blood sugar levels (Altesino, 2012).

A study was conducted to assess the effect of auricular pellet acupressure on anti oxidative systems in high risk diabetes mellitus. The study involved 69 persons with high-risk DM, who were allocated either to undergo acupressure as active treatment for experimental group or to a control group. The experimental group received auricular pellet acupressure 3 times daily for 5 consecutive days. After a 2 day rest period, the procedure was performed on contralateral ear. Acupressure was performed twice on each ear with each application followed by its application to contralateral ear over a period of 7 days. Serum concentrations of superoxide dismutase and catalase concentrations were significantly higher in experimental group than in control group. Findings suggest that

auricular pellet acupressure can increase the concentration of anti oxidative enzymes in persons with high risk diabetes mellitus (Lin, 2011).

A study was conducted to assess whether acupressure is useful in the management of diabetes. Eight lean well controlled patients with Type 2 diabetes using usual dosages of regular and intermediate acting insulin, who had undergone acupressure experienced higher insulin levels and lower serum glucose levels by 15 minutes after start of acupressure and 29 minutes post injection. At this interval changes were not statistically significant. Serum glucose levels, was 8.3% lower ($P<0.05$) after 30 minutes of acupressure and 44 min post injection compared to the control group where participants had not underwent acupressure. After 20 minutes acupressure, the difference in glucose level was greater for the experimental group (76mg/dl) when compared to control group (89mg / dl) (Taller, 2015).

An awareness programme was conducted for trained clinical staff to administer 15minutes sessions of acupressure to diabetic patients. The study was conducted for 1 week using pretest, post test with control group design with a sample size of 12. Patients experienced a reduction in blood sugar, anxiety and headaches (Chen, 2013).

A study was conducted to determine effectiveness of acupressure therapy in preventing diabetic complications. 34 patients with type 2 diabetes mellitus were selected for the study. All participants of the study were treated with conventional medicines plus diet & exercise programs to manage hyperglycemia. One group was randomly assigned

to undergo twenty minute session of acupressure 4 – 6 times a week. At the end of the study period, patients in the acupressure group had lower level of blood glucose, total cholesterol, triglycerides and LDL cholesterol and higher levels of HDL cholesterol. Nerve conduction velocity was also significantly higher in the acupressure group. Serum creatinine and urine protein, were similar between both groups at the end of study follow up. These results suggest that acupressure helps in preventing diabetic complications such as kidney failure and nerve damage (Jung, 2012).

CONCEPTUAL FRAMEWORK

A conceptual model broadly presents an understanding of the phenomena of interest and reflects the assumptions and philosophical view of the designer. This model represents world views about the nursing process and nature of nurse patient relationship.

According to Wiedenbach's prescriptive theory, nursing is nurturing and caring for someone in a motherly fashion. The theory directs an action towards an explicit goal.

In this study the goal is to assess the effect of acupressure for reducing the blood sugar among patients with type II diabetes mellitus in a selected hospital, Coimbatore. Wiedenbach's theory was chosen as conceptual framework for this study. It consists of 3 components such as identification, ministration and validation.

IDENTIFICATION

Patients with Type II diabetes mellitus undergoing treatment were selected based on the demographic variables including age, sex, educational status, occupation, medications undertaken, diet, personal habits, anthropometric measurement and investigations.

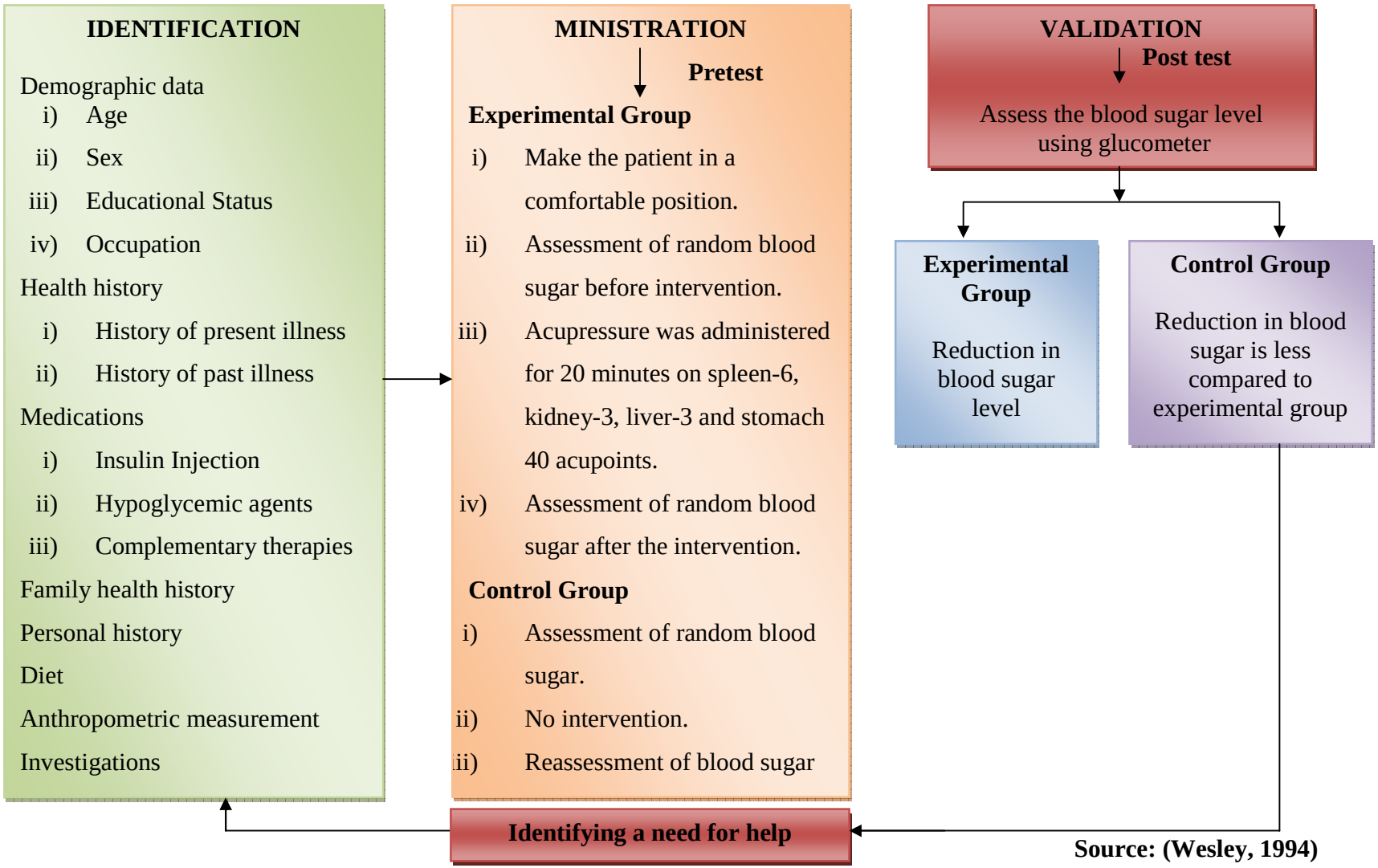
MINISTRATION

The researcher randomizes the samples into experimental group and control group. The experimental group receives intervention and the control group receives only routine care. Before administering acupressure therapy random blood sugar was checked for both the experimental group and control group.

Acupressure therapy was administered in the following acu points such as Spleen6 (Sp6), Liver3 (Liv3), Kidney3 (K3) and Stomach40 (St40) of both legs alternatively. Sp6 is located on inside of the lower leg, one hand width above the tip of the ankle bone.Liv3 is located in the foot on the line between big toe and second toe. The point is located about 3 finger width from the edge, in the depression.K3 is located inside of the foot between the Achilles tendon and the ankle bone.St40 is located on the anterior aspect of the lower leg, 8 fingers superior to external malleolus. Acupressure therapy was given in circular motion for 5 minutes on each acupoint. The therapy was given in morning and evening sessions. After acupressure, random blood sugar was checked for both the experimental group and the control group.

VALIDATION

In post-test the researcher reassess the effect of acupressure among the experimental group using glucometer.



<u>Fig. 1.</u> Conceptual framework based on wiedenbach's helping art of clinical nursing theory (1964)

CHAPTER III

METHODOLOGY

Research methodology is a systematic quest for undiscovered knowledge. In research methodology the various steps that are generally adopted by the researcher in studying the research problem is discussed along with logic reasons. It also helps the researcher to explain specifically and clearly the various criteria, techniques, sampling and research design selected for the study. The study was designed for evaluating the effect of acupressure among patients with Type 2 diabetes mellitus for reducing the blood sugar. The following topics are discussed in detail. It includes research design, setting, population, criteria for sample selection, variables of the study, materials for data collection, validity of the tool, hypothesis, reports of pilot study and main study and techniques of data analysis and interpretation.

RESEARCH APPROACH

A Quantitative approach was used to evaluate the effect of acupressure on blood sugar among patients with Type 2 diabetes mellitus.

RESEARCH DESIGN

The research design selected for the study was Quasi experimental Pretest-Posttest with control group design. The design was found to be effective in identifying the effect of acupressure on blood sugar level.

E O_1 X O_2

C O_3 O_4

Where

E - Experimental group

C - Control group

X - Acupressure

O_1 - Pre Test Experimental Group

O_2 - Post test Experimental Group

O_3 - Pre Test Control Group

O_4 - Post Test Control Group

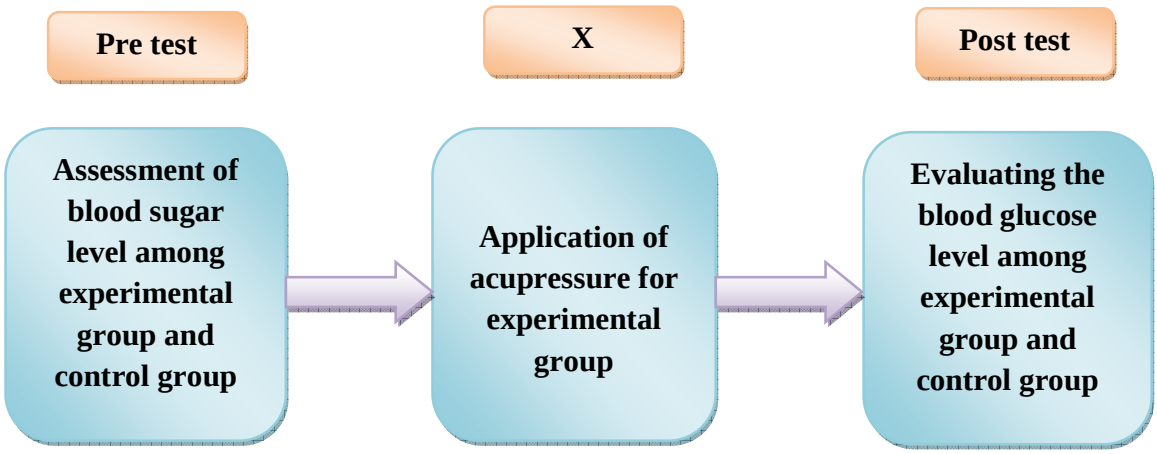


Fig. 2 Schematic Representation of Research Design

SETTING

The study was conducted at Ashwin Hospital, Coimbatore. Patients who were admitted in the general ward and special ward were selected as samples for the study.

POPULATION

The accessible population of the study includes the patient with diabetes mellitus who were admitted in Ashwin Hospital, Coimbatore.

SAMPLE SIZE

Sample size of the present study was 30, out of which 15 belongs to experimental group and 15 belongs to control group.

SAMPLING TECHNIQUE

Non probability convenient sampling technique was adopted for the study. The investigator gathered information of the samples and the samples who met the inclusion criteria were included in the study.

CRITERIA FOR SAMPLE SELECTION

Inclusive criteria:

- Patients with Type 2 diabetes mellitus who are aged above 45 years.
- Patients of both genders with Type 2 diabetes mellitus admitted in medical, surgical, neuro and special wards of Ashwin Hospital.
- Patients who were undertaking insulin therapy for reducing the blood sugar.

Exclusive criteria:

- Patients who are suffering with complications of diabetes mellitus such as diabetic foot ulcer, diabetic ketoacidosis, hyper osmolar hyper glycemic syndrome and micro angiopathy.
- Patients with blood sugar level below 140 mg/dl.

DESCRIPTION OF TOOL

Section a Demographic variable

Demographic variables which include age, sex, education, occupation, health history, diet history and anthropometric measurement.

Section b Blood sugar level of type-ii diabetes mellitus patients

It is a table containing the pretest and post test blood sugar level. It is used to assess the random blood sugar level for both experimental and control group. Acupressure was applied on the acupoints located in the leg on circular motion for 5 minutes. After the acupressure, random blood sugar was checked for both experimental group and control group.

TESTING OF THE TOOL

Content validity

The tool was given to five expert in the field of nursing and medicine for content valildity. All the comments and suggestions given by the experts were dully considered and corrections were made.

Reliability

The reliability of tool was established by split half method and the score obtained was 0.82.

PILOT STUDY

A pilot study was conducted to find out the feasibility and practicability of the study. Pilot study was conducted at Ashwin Hospital, Coimbatore. Data collection period was for 10 days. Purposive samplings of 6 subjects were selected for the study. The blood sugar was checked using the glucometer. Acupressure therapy was administered according to the blood sugar levels. The intervention was given for 20 minutes daily, morning and evening sessions for 1 week for each person. Blood sugar was checked before and after the intervention. Data collected were tabulated and analyzed using descriptive statistical methods and results show that blood sugar level was reduced on application of acupressure. Hence the study is feasible and practical.

DATA COLLECTION PROCEDURE

The data was collected for 30 days. The study was conducted at Ashwin Hospital in Coimbatore from1-11-15 to 31-11-15.. Adults who satisfied the inclusion criteria were selected for the study. Initially the patients were assigned into experimental group and control group. The total size of sample was 30. In each group, 15 samples were allotted. The baseline data were obtained by interviewing the patient. The blood sugar level was assessed before and after the acupressure. Acupressure therapy was administered according to the blood sugar levels. The intervention was given for 20 minutes daily, morning and evening sessions for 1 week for each person. Blood sugar was checked before and after the intervention.

PLAN FOR DATA ANALYSIS

Descriptive and inferential statistical techniques were used for data analysis. Descriptive statistics was applied for demographic variable analysis. Inferential statistics was used to assess the significance of test and correlation of variables. Paired ‘t’ test was used to find out the significance of acupressure therapy in experimental group and control group. Unpaired ‘t’ test was used to find out the comparison of post-test scores among experimental group and control group.

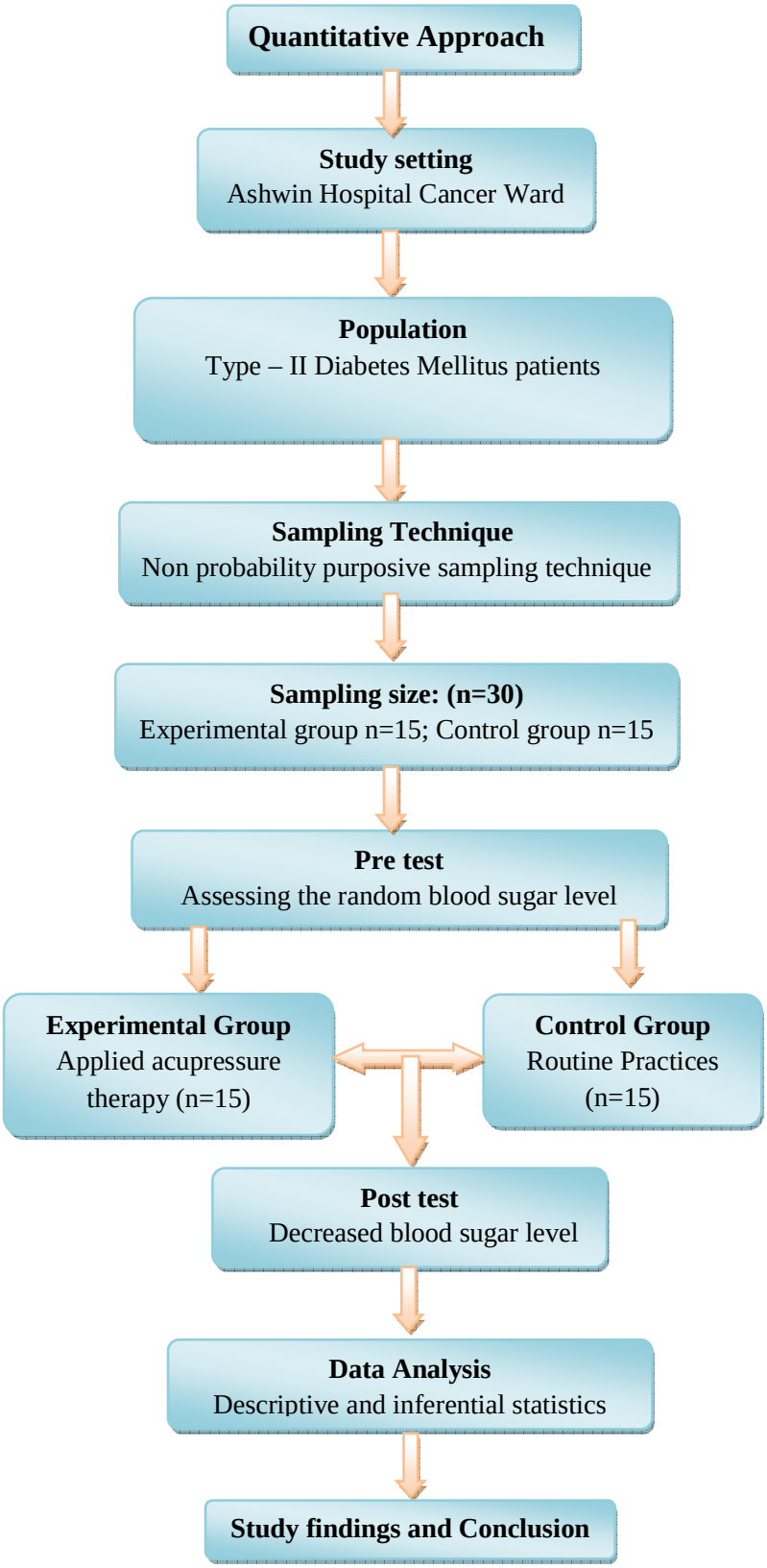


Fig.3 The Overall view of Research Methodology

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter represents the method of analysis and interpretation of data. Acupressure was administered to patients with Type 2 diabetes mellitus. The study was done to assess the effect of acupressure on blood sugar among patients with Type 2 diabetes mellitus. The findings were tabulated, analyzed and interpreted in this chapter. The data was computed using descriptive and inferential statistics.

Section – I : Distribution of demographic variables of patients having Type – II diabetes among control group and experimental group.

Section – II : Description of Blood Sugar values among control group and experimental group.

a) Comparison of blood sugar value in control group and experimental group before the application of acupressure.

b) Distribution of blood sugar level among experimental group before and after application of acupressure.

c) Distribution of blood sugar level among control group before and after application of acupressure.

d) Comparison of blood sugar level among experimental group and control group after application of acupressure.

TABLE. 1

DISTRIBUTION OF DEMOGRAPHIC VARIABLES

AMONG DIABETES PATIENTS

(n=30)

S.No	Demographic Data	Experimental Group		Control Group	
		No. of Patients	Percentage (%)	No. of Patients	Percentage (%)
1.	**Age in years**				
	a) 45 – 50	4	27	4	27
	b) 50 - 55	3	20	1	7
	c) 55 – 60	1	7	2	13
	d) 60 – 65	6	40	2	13
	e) 65 – 70	1	6	4	27
	f) 70 – 75	-	-	2	13
2.	**Sex**				
	a) Male	8	53	7	47
	b) Female	7	47	8	53
3.	**Education**				
	a) Primary	8	53	7	47
	b) Secondary	4	27	5	33
	c) Undergraduate	1	7	3	20
	d) Post Graduate	2	13	-	-

4.	**Occupation**				
	a) Unemployed	9	60	11	73
	b) Sedentary Work	1	7	-	-
	c) Moderate Work	5	33	4	27
	d) Heavy Work	-	-	-	-

TABLE 2

DISTRIBUTION OF DIET HISTORY AMONG DIABETIC PATIENTS

(n=30)

S.No.	Dietetics History	Experimental Group		Control Group	
		No. of Patients	Percentage (%)	No. of Patients	Percentage (%)
1.	**Frequency**				
	Two time / day	-	-	-	-
	Three / day	15	100	15	100
2.	**Type of food**				
	Vegetarian	5	33	-	-
	Non-Vegetarian	10	67	15	100

TABLE. 3

DISTRIBUTION OF ANTHROPOMETRIC MEASUREMENT AMONG DIABETIC PATIENTS

(n=30)

S.No	Anthropometric Measurement	Experimental Group		Control Group	
		No. of Patients	Percentage (%)	No. of Patients	Percentage (%)
1.	**Height (cm)**				
	a) 145 – 150	-	-	1	7
	b) 150 – 155	1	7	-	-
	c) 155 – 160	2	13	3	20
	d) 160 – 165	2	13	3	20
	e) 165 – 170	8	53	5	33
	f) 170 – 175	2	13	3	20
2.	**Weight (kg)**				
	a) 45 – 50	3	20	1	7
	b) 50 – 55	5	34	7	46
	c) 55 – 60	3	20	1	7
	d) 60 – 65	2	13	2	13
	e) 65 – 70	-	-	3	20
	f 70 – 75	2	13	1	7

TABLE. 4

DISTRIBUTION OF HEALTH HISTORY AMONG DIABETIC PATIENTS

(n=30)

S.No	Health History	Experimental Group		Control Group	
		No. of Patients	Percentage (%)	No. of Patients	Percentage (%)
1.	**Medications**				
	Insulin injection	7	47	8	53
	Hypoglycemic agents	6	40	4	27
	Not undergoing any treatment	2	13	3	20
2.	**Duration of Illness**				
	Recently diagnosed	5	33	5	33
	Upto 5 yrs.	5	33	4	27
	5 – 10 yrs	4	27	4	27
	10 – 15 yrs	1	7	2	13
3.	**Personal Habits**				
	Smoking	3	20	3	20
	Alcohol	1	7	1	7
	Tobacco chewing	-	-	1	7
	Not a smoker or alcoholic	11	73	10	66

- The age distribution of patients among experimental group shows that 27% of patients are in the age group of 45 – 50 years, 20% are between 50 – 55 years, 7% are between 55 – 60 years, 40% between 60 – 65 years and 6% are between 65 – 70 years. In control group, 27% are between 45-50 years, 65-70 years respectively, 7% are between 50- 55 years, and 13% are between 55-60 years, 60 - 65 years and 70-75 years respectively.

- The sex distribution among experimental group shows that 53% are males and 47% are females. In control group 47% are males and 53% are females.

- The distribution of educational status among experimental group shows that 53% have primary education, 27% have secondary education, 7% are undergraduates and 13% are postgraduates. In control group, 47% have primary education, 33% have secondary education and 20% are undergraduates.

- The distribution of occupational status shows that, in experimental group 60% are unemployed, 7% are sedentary workers and 33% are moderate workers. In the control group 73% are unemployed and 27 % are moderate workers.

- The distribution of frequency of diet shows that 100% of the samples of the experimental group and control grouptake meals 3 times a day.

- The distribution on type of foods among experimental group shows that 33% are vegetarian and 67% are non-vegetarian. In the control group 100% of the samples are non-vegetarian.

- The height distribution of patients among experimental group reveals that 7% are between the height 150 - 155 cm, 13% are between the height 155- 160 cm, 160-165 cm and 170-175cm respectively and 53% are between the height 165-170 cm. The distribution of height among control group reveals that 7% are between the height 145-150cm, 20% are between the height 155-160cm, 160-165 cm and 170-175cm respectively and 33% are between the height 165-170 cm.

- The weight distribution of patients among experimental group reveals that 20% are between the weight 45-50 kg and 55-60 kg respectively, 33% are between the weight 50-55 kg,13 % are between the weight 60-65 kg and 70-75 kg respectively. In control group 7% are between the weight 45-50kg, 55-60 kg and 70-75 kg respectively , 47% are between the weight 50-55 kg, 13% are between the weight 60-65 kg, 20% are between the weight 65-70 kg and 7% are between the weight 70-75 kg.

- The distribution of medications among the experimental group reveals that 47% are taking insulin injections, 40%are taking hypoglycemic agents and 13% are not undertaking any treatment. In control group 53% are taking insulin injections, 27% are taking hypoglycemic agents and 20% are not undertaking any treatment.

- The distribution of duration of illness among experimental group reveals that 33% are recently diagnosed. 33% are having diabetes for 5 years, 27% are having diabetes between 6 -10 years and 7 % are having diabetes between 11-15 years. In control group

33% are recently diagnosed, 27% are having diabetes for 5 years, 27% are having between 6-10 years and 13% are having diabetes between 11-15 years.

- The distribution of personal habits among patients in experimental group reveals that 20% are smokers, 7% are alcoholics and 73% are non-smokers and non-alcoholics. In control group 20% are smokers, 7% are alcoholics, 7% are tobacco chewers and 66% are non-smokers and non-alcoholics.

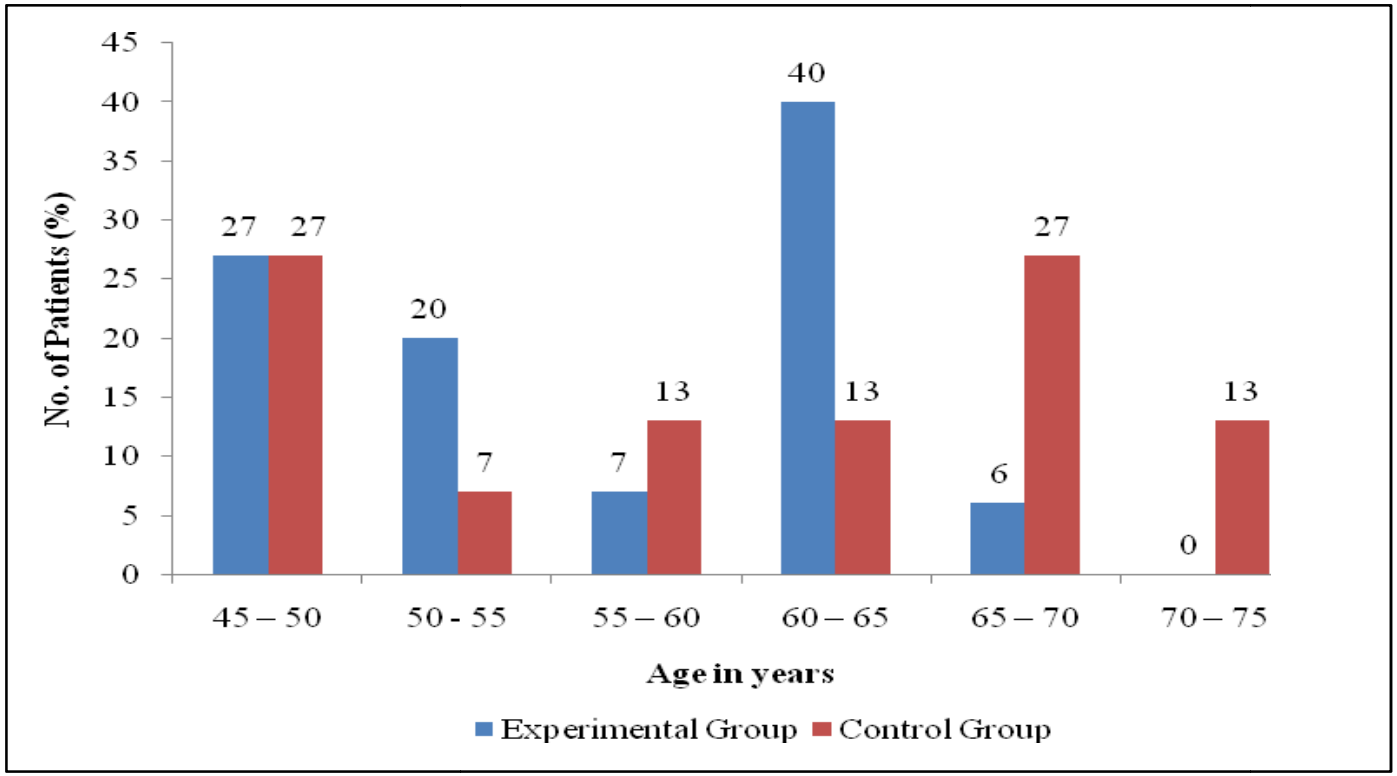


Fig. 4 Distribution of Demographic Variables According to the Age of patients in Experimental Group and Control Group

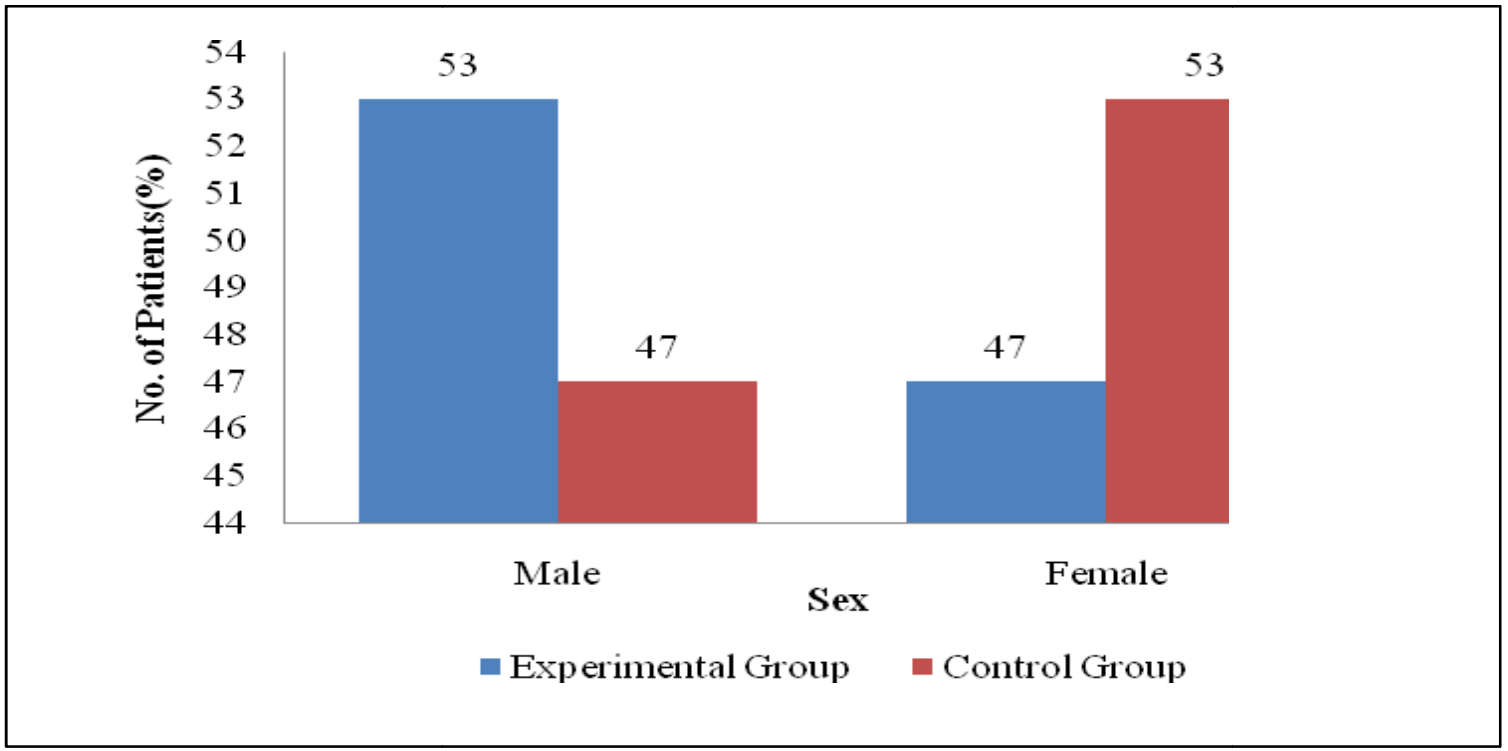


Fig. 5 Distribution of Demographic Variables According to the Gender of Patients in Experimental Group and Control Group

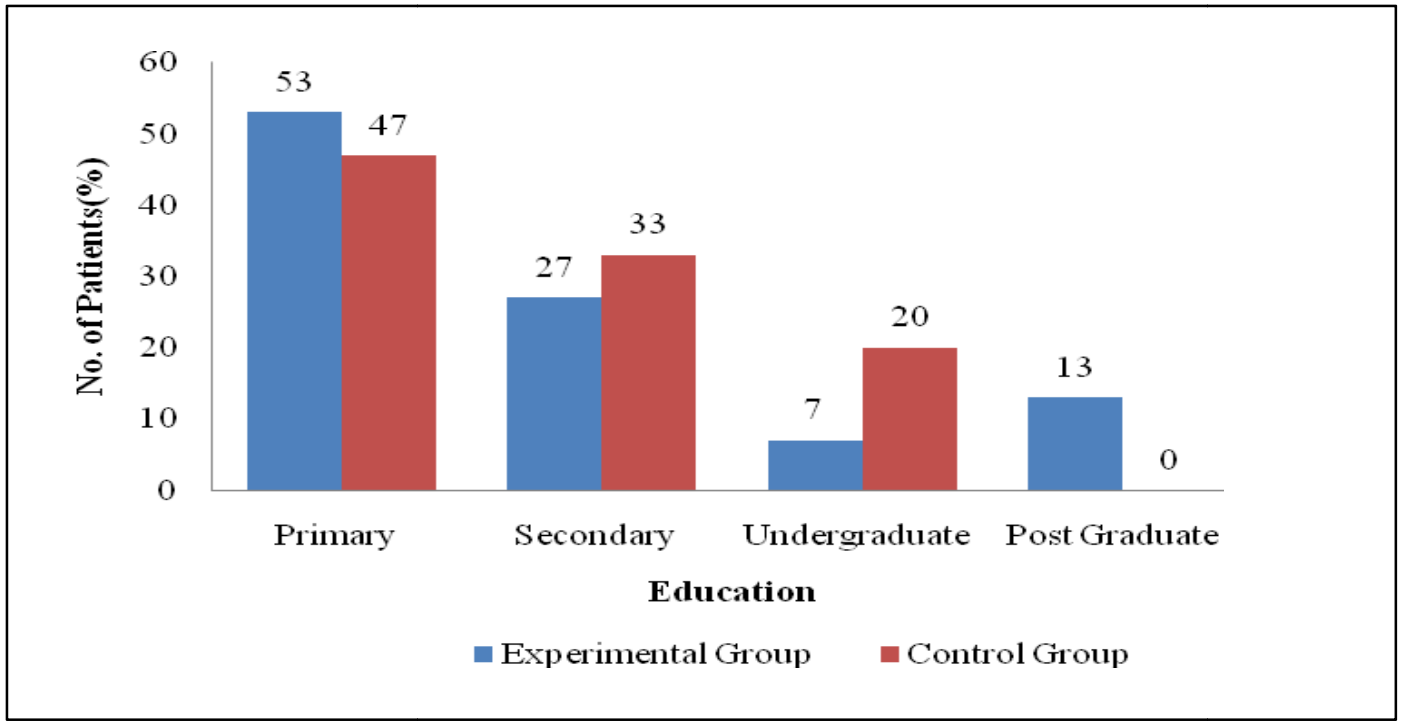


Fig. 6 Distribution of demographic variables according to the education in the experimental group and control group

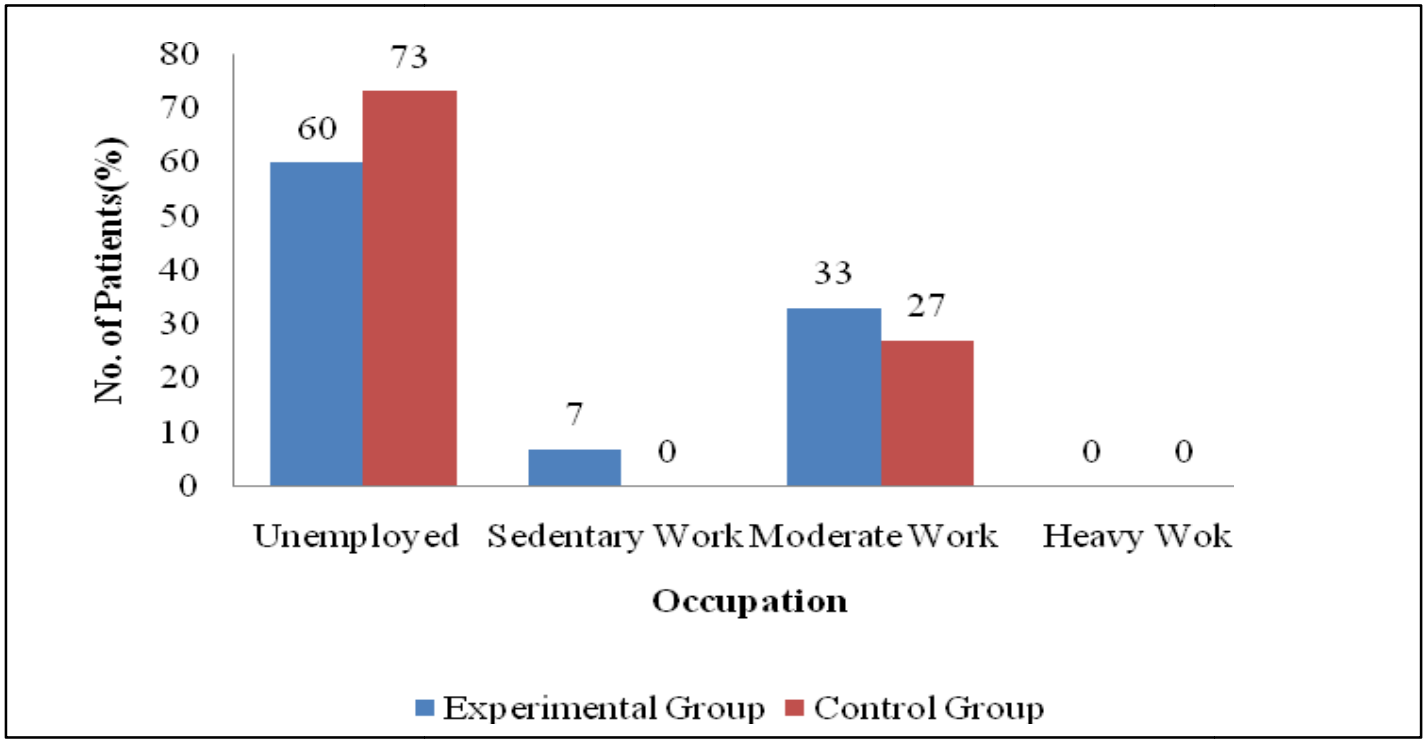


Fig. 7 Distribution of Demographic Variables According to the Occupation in the Experimental Group and Control Group

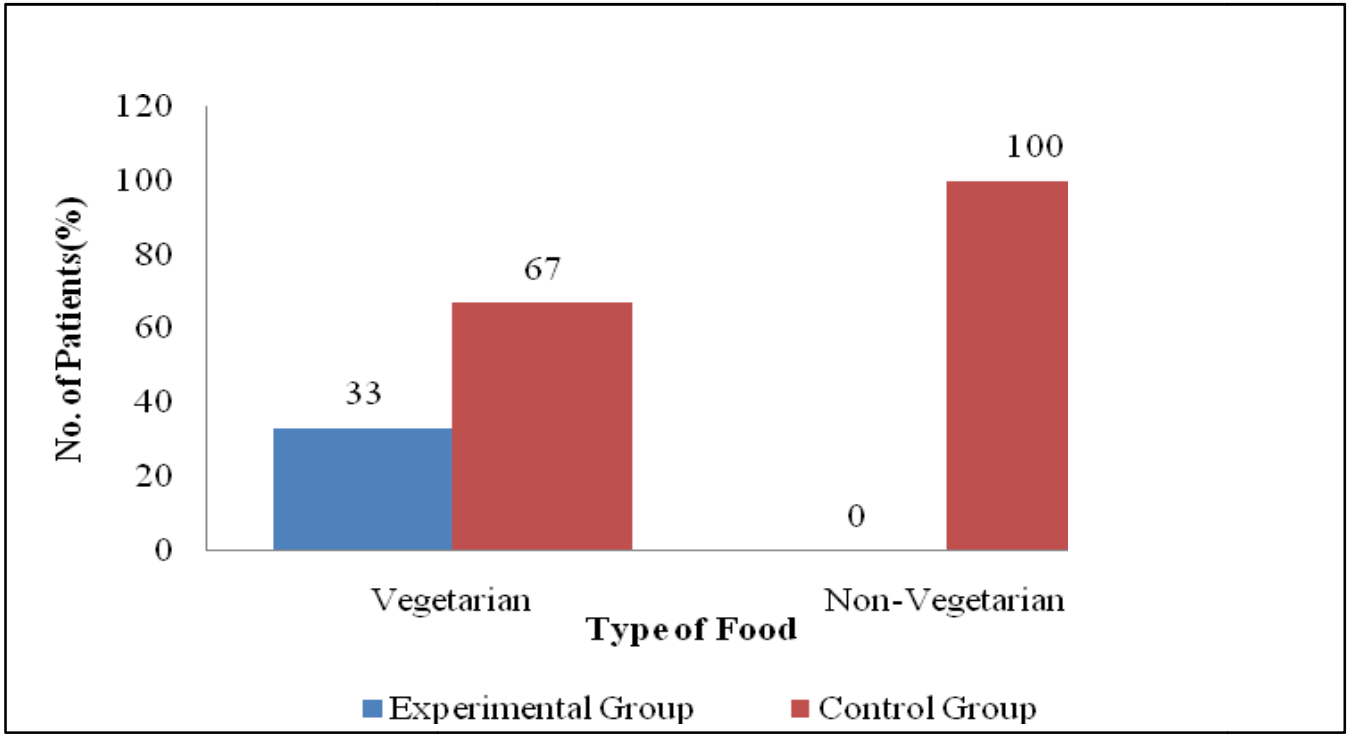


Fig. 8 Distribution of Demographic Variables According to the food type in the Experimental Group and Control Group

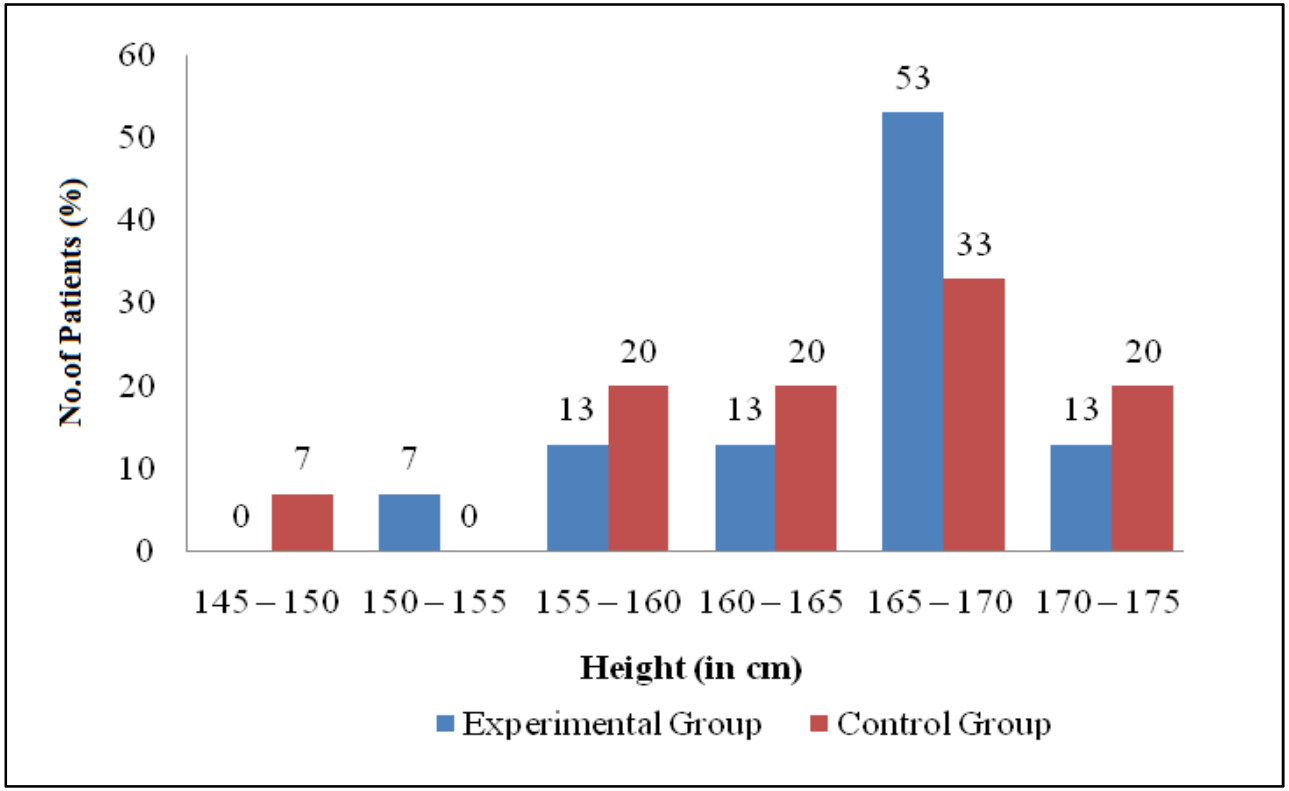


Fig. 9 Distribution of Demographic Variables According to the Height in the Experimental Group and Control Group

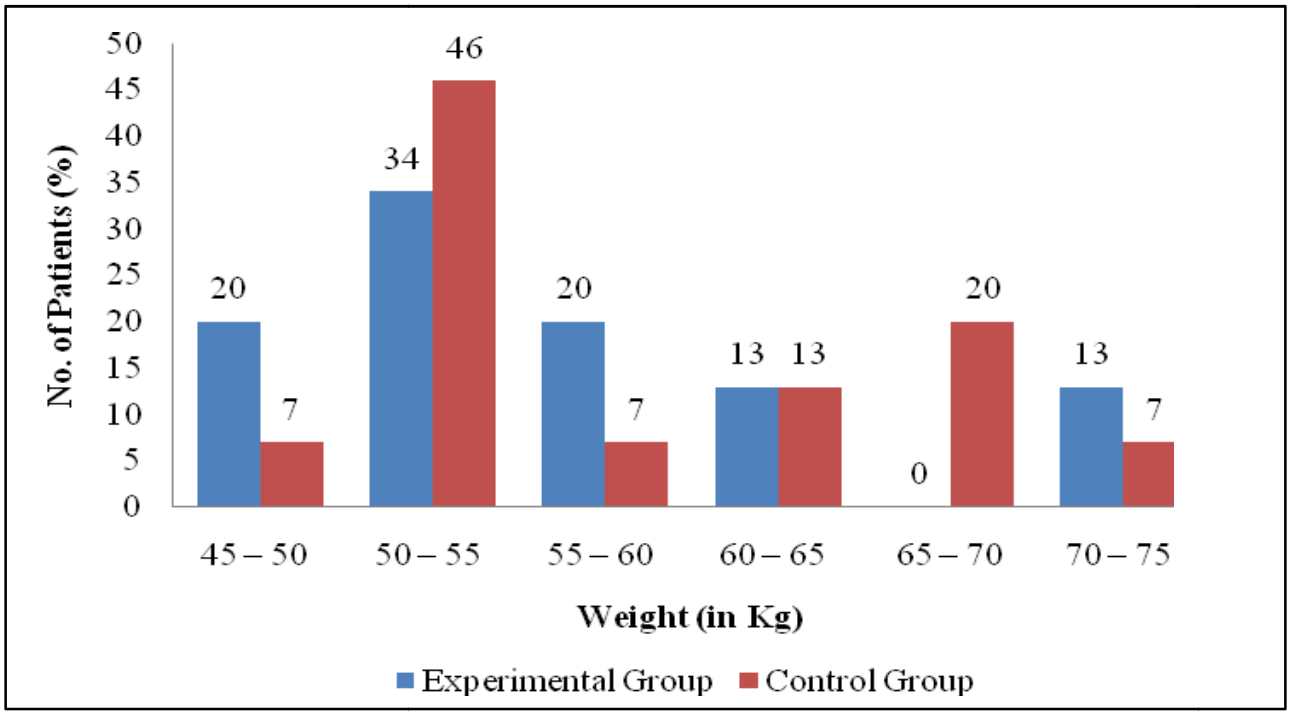


Fig. 10 Distribution of Demographic Variables According to the Weight in the Experimental Group and Control Group

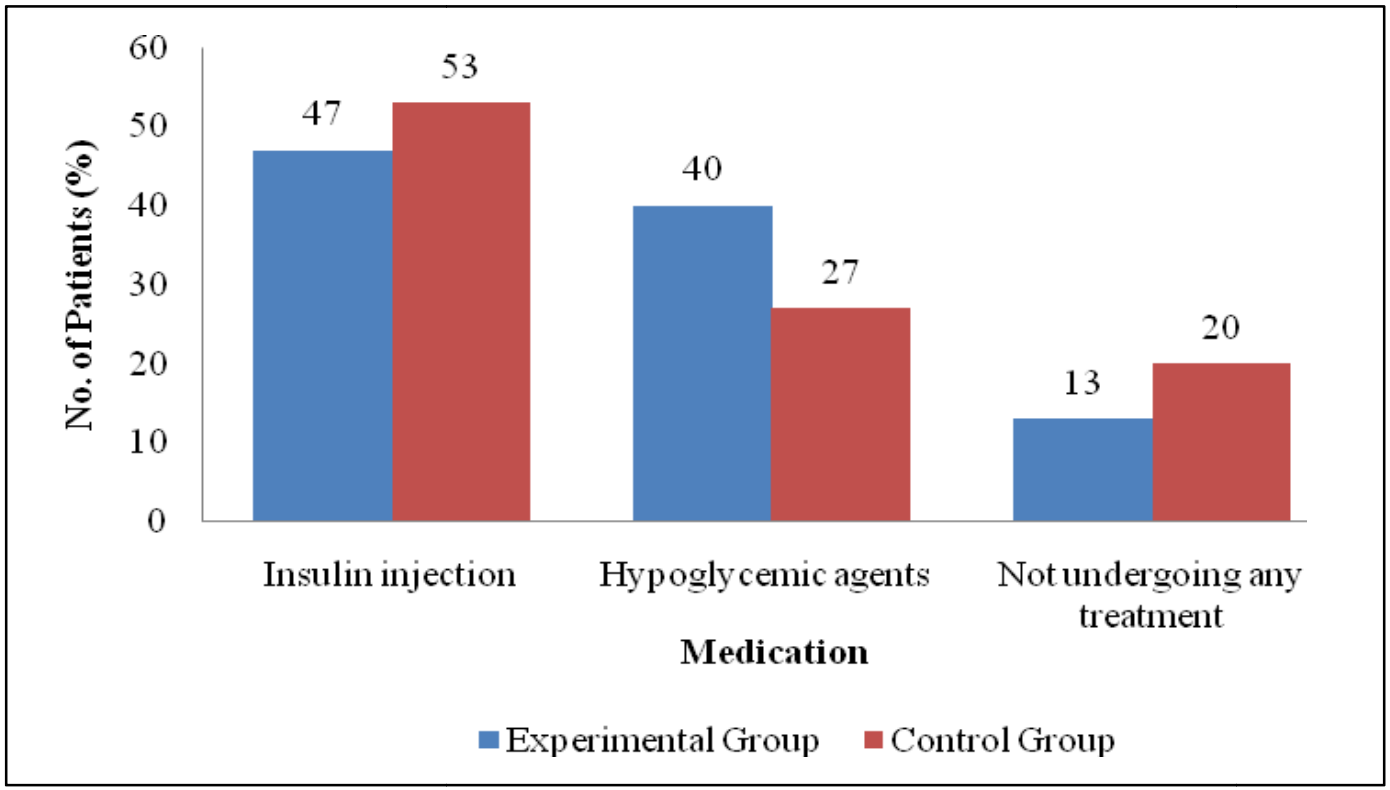


Fig. 11 Distribution of Demographic Variables According to the Medication in the Experimental Group and Control Group

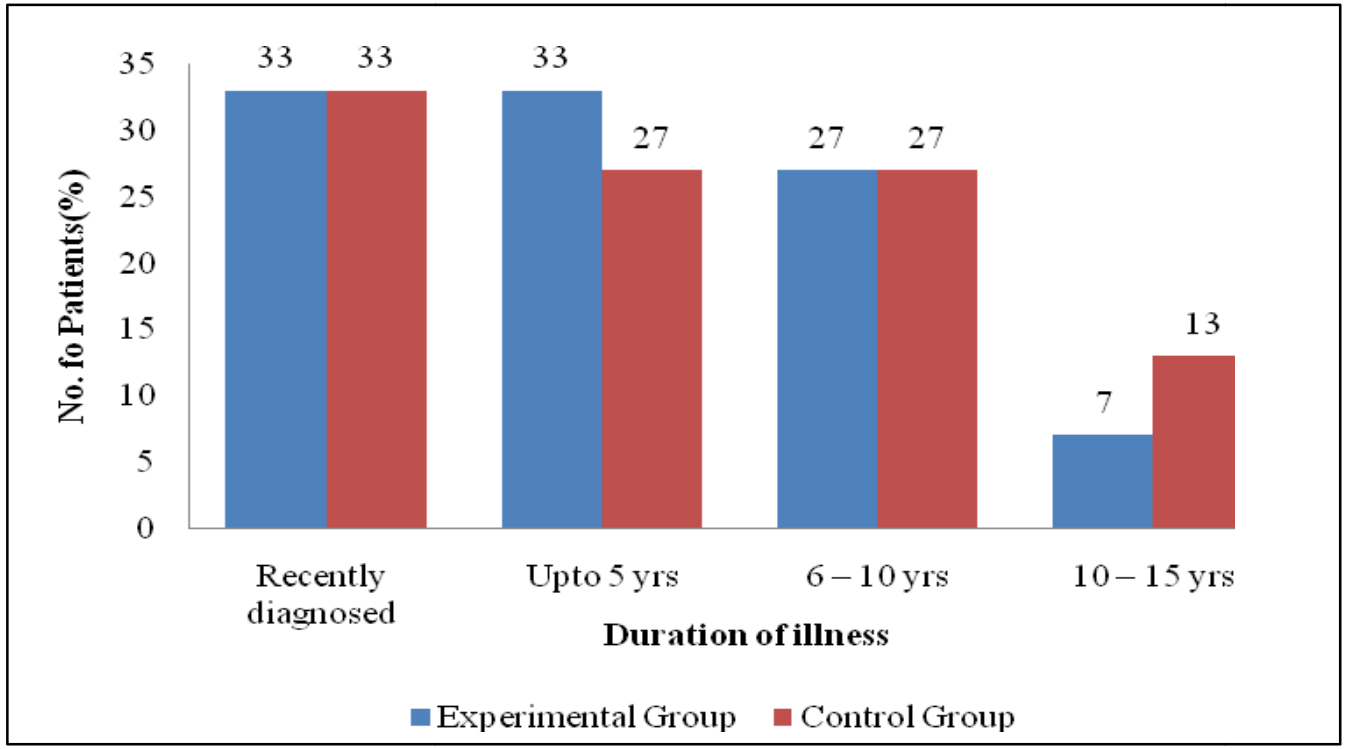


Fig. 12 Distribution of Demographic Variables According to the Duration of illness in the Experimental Group and Control Group

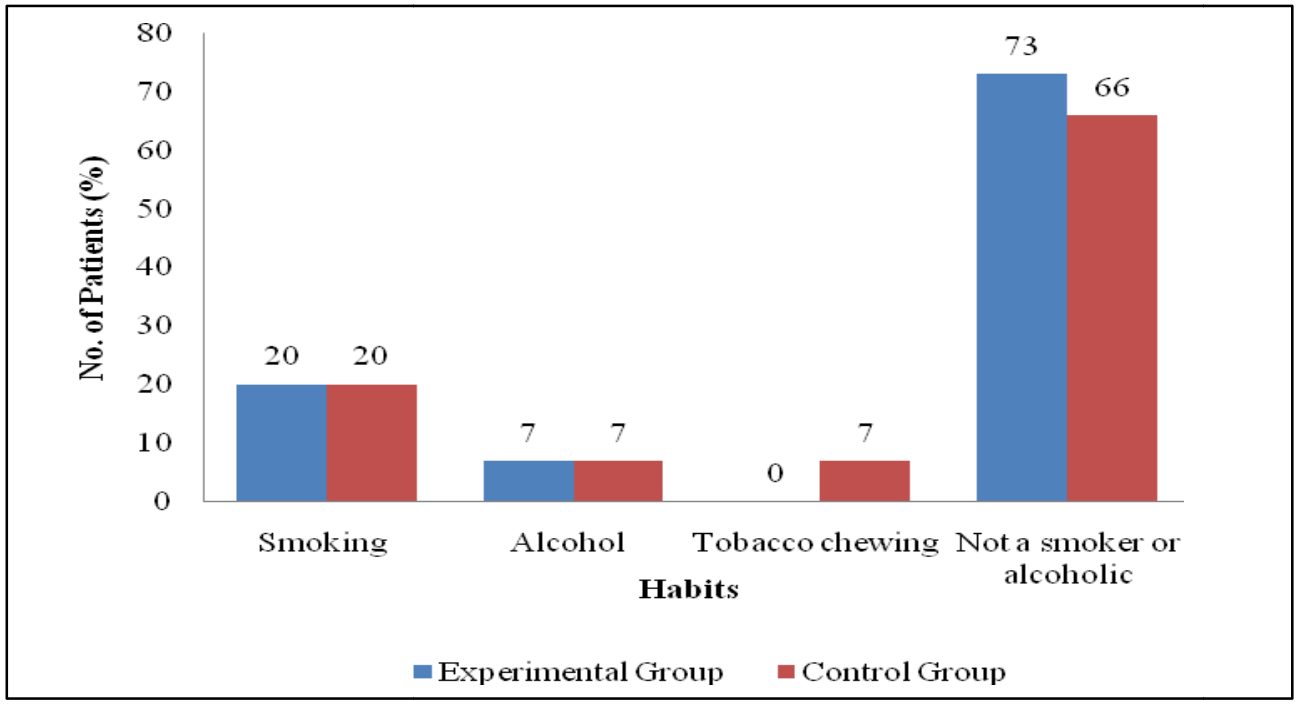


Fig. 13 Distribution of Demographic Variables According to the Habits in the Experimental Group and Control Group

SECTION – II

COMPARISON OF BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP AND CONTROL GROUP BEFORE INTERVENTION

The table 5 represents the mean, mean difference and 't' value of experimental group and control group before the intervention.

TABLE 5

COMPARISON OF BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP AND CONTROL GROUP BEFORE INTERVENTION

(n=30)

Acupressure	Mean	Mean Difference	SD	't'
Experimental group	297	42	**36**	1.86*
Control group	255		**75**	

***Significant at 0.05 level**

The calculated 't' value was 1.86 and the table value was 1.701 at 28 degrees of freedom with 0.05 level of significance. There is a mild difference between calculated 't' value and the table value. The blood sugar levels of the experimental group and the control group before the intervention proves the homogeneity of the groups. The results shows that the treatment underwent by the patients during hospital stay also influence the blood sugar level.

ANALYSIS ON EFFECT OF ACUPRESSURE ON BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP

Analysis of blood sugar level among patients with Type II diabetes mellitus before and after intervention was calculated using paired‘t’test.This is to find out the influence of acupressure among patients with Type II diabetes mellitus. The table 4.5. represents the mean, standard deviation, mean difference and ‘t’ value of experimental group before and after the intervention.

TABLE 6

DISTRIBUTION OF BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP BEFORE AND AFTER INTERVENTION

(n=15)

Acupressure	**Mean**	**Standard Deviation**	**Mean Difference**	**‘t’**
Before Intervention	297	36	90	7.387*
After Intervention	207	39		

***Significant at 0.05 level**

The mean score of diabetic patients before receiving acupressure for experimental group was 297 and it was decreased to 207 after intervention. To test the significance mean difference and paired ‘t’ test was applied.

The calculated ‘t’ value 7.387 at 14 degrees of freedom was compared with table value 1.761 at 0.05 level of significance. The calculated value was higher than the table value the alternative hypothesis was accepted. Hence, there existed a significant effect on the administration of acupressure therapy on reducing the blood sugar level among patients with Type 2 diabetes mellitus. This proved that the acupressure therapy had a significant role in reducing the blood sugar level.

ANALYSIS OF BLOOD SUGAR LEVELS AMONG CONTROL GROUP

The table 7 represents the mean, standard deviation, mean difference and 't' value of control group before and after the intervention.

TABLE 7

DISTRIBUTION OF BLOOD SUGAR LEVEL AMONG CONTROL GROUP BEFORE AND AFTER INTERVENTION

(n=15)

Acupressure	Mean	Standard Deviation	Mean Difference	't'
Before Intervention	255	75	44	1.631*
After Intervention	299	49		

***Significant at 0.05 level**

The mean score of diabetic patients in control group of pretest shows a score of 255, and the post test was increased to 299 without intervention. 't' test was used to test if there exists any significance in the mean difference.

The calculated 't' value 1.631 was compared with table value 1.761 at 14 degrees of freedom with 0.05 level of significance. As the calculated value was lower than the table value the hypothesis was accepted. This proved that there is no significant difference in blood sugar level among control group without intervention.

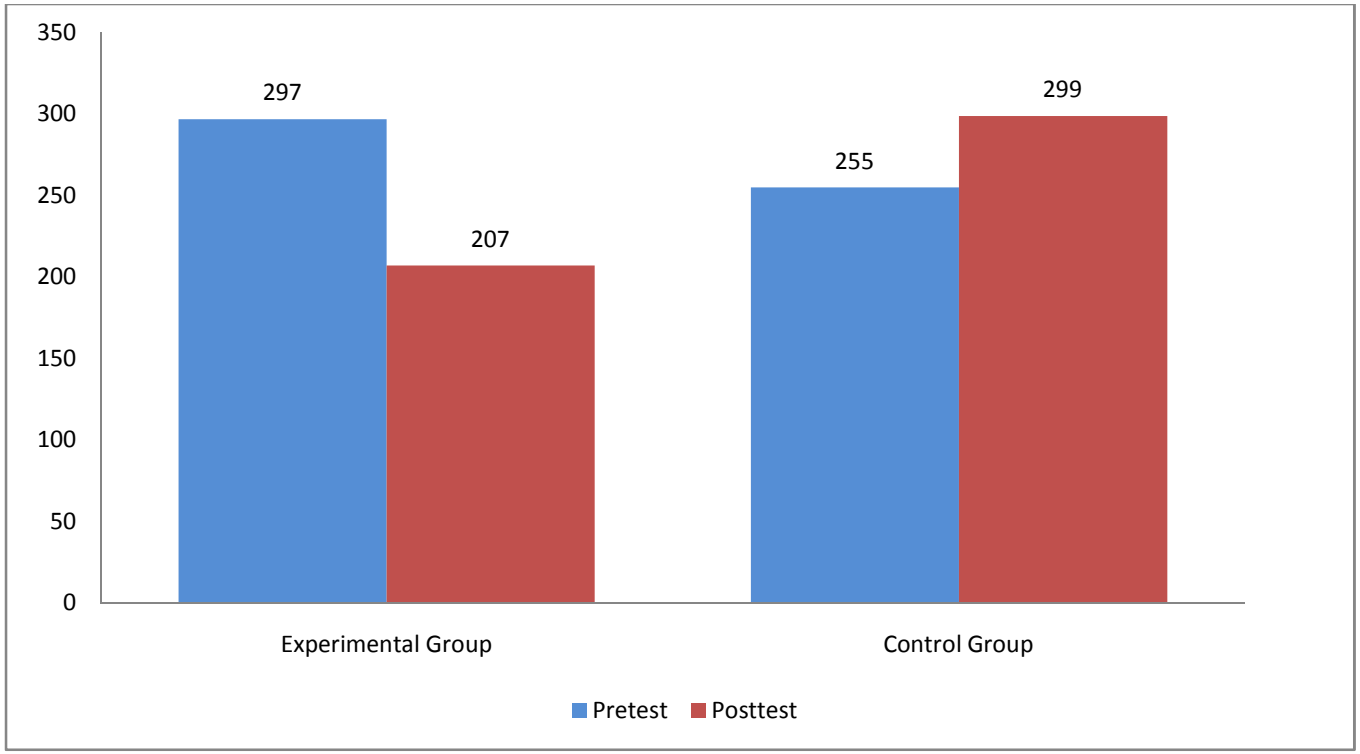


Fig. 14 Distribution of blood sugar values among

Experimental group and control group

COMPARISON OF BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP AND CONTROL GROUP AFTER INTERVENTION

The table 8 represents the mean, mean difference and t value of experimental and control group after the intervention.

TABLE 8

COMPARISON OF BLOOD SUGAR LEVEL AMONG EXPERIMENTAL GROUP AND CONTROL GROUP AFTER INTERVENTION

(n=30)

Acupressure	**Mean**	**Mean Difference**	**SD**	**'t'**
Experimental group	207	92	39	5.496*
Control group	299		49	

***Significant at 0.05 level**

The calculated't' value was 5.496 and the table value was 1.701 at 28 degrees of freedom with 0.05 level of significance. The calculated t value was higher than the table value. This proved that acupressure therapy had a significant role in reducing the blood sugar level.

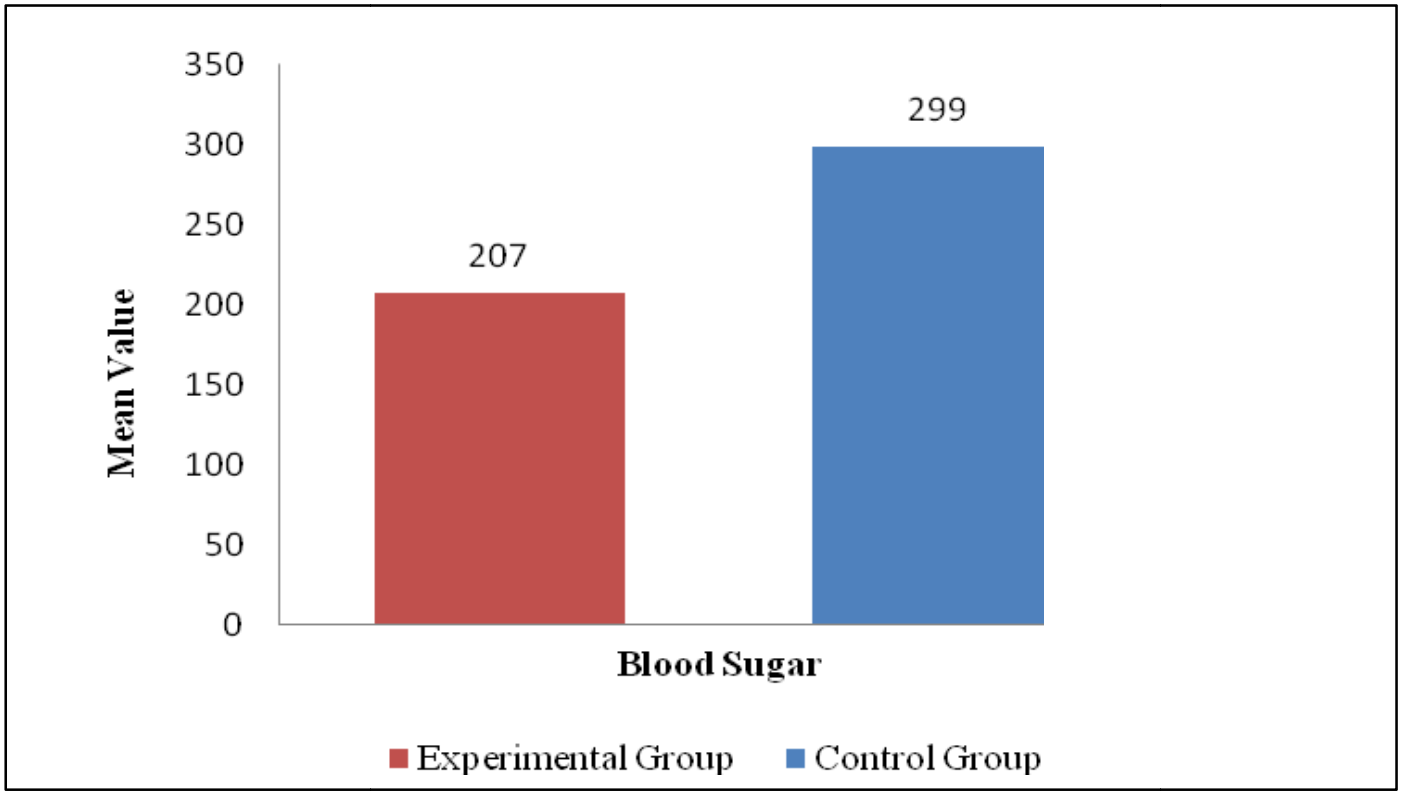


Fig. 15 Distribution of blood sugar level among Experimental group and control group after the intervention

CHAPTER - V

RESULTS AND DISCUSSION

This is an experimental study to assess the effectiveness of acupressure on level of blood sugar among patients with type II diabetes mellitus. The data were analyzed by using descriptive and inferential statistics. The results of the study were discussed according to the objective.

The first objective of the study was to Assess the Level of Blood sugar Among Patients with Type – II Diabetes Mellitus in Experimental Group and Control Group

Blood glucose level was obtained by using Glucometer. The mean pretest blood glucose level among experimental group and control group was 297 and 295. The findings implies that there was a homogeneity exit among the control group and experimental group before applying acupressure.

A similar study was conducted by Crazanthio (2010) on effectiveness of acupressure among type II diabetes mellitus. The prêt test value of blood sugar in experimental group and control group was 299 and 298. It showed that homogeneity exist between the experimental group and control group among patients with diabetes mellitus.

The Second Objective of Study was to apply Acupressure among patients with Type – II Diabetes Mellitus in Experimental Group

The samples were selected by non-probability convenient sampling technique on the basis of selection criteria. Before administering acupressure therapy random blood sugar was checked for both the experimental group and control group.

Acupressure therapy was administered in the following acu points such as Spleen6 (Sp6), Liver3 (Liv3), Kidney3 (K3) and Stomach40 (St40) of both legs alternatively. Sp6 is located on inside of the lower leg, one hand width above the tip of the ankle bone.Liv3 is located in the foot on the line between big toe and second toe. The point is located about 3 finger width from the edge, in the depression.K3 is located inside of the foot between the Achilles tendon and the ankle bone.St40 is located on the anterior aspect of the lower leg, 8 fingers superior to external malleolus. Acupressure therapy was given in circular motion for 5 minutes on each acupoint. The therapy was given in morning and evening sessions. After acupressure, random blood sugar was checked for both the experimental group and the control group.

The similar type of study was conducted by Nirmal (2009) to see the effects of acupressure in type II diabetes mellitus. He divided the groups into three and applied acupressure for one month, two months, three months. The study revealed that reduction of blood sugar is directly proportional to the duration of acupressure

.

The Third Objctive of the Study was to evaluate the level of blood sugar in Experimental Group and Control Group

The findings after analysis reveals that the pretest mean value of blood glucose level among experimental group and control group was 197 and 195. The post test value of blood sugar level among experimental group and control group was 207 and 299. This reveals that there was a significant difference exists between the pretest and posttest mean value among experimental group and control group. It showed that application of acupressure is effective in reducing blood sugar value in experimental group.

A similar type of study was done by Nazer (2011) on effects of acupressure on blood sugar level of patients with type II diabetes mellitus . The findings supported that the blood sugar level decreased after application of acupressure in experimental group.

CHAPTER - VI

SUMMARY, CONCLUSION, NURSING IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

SUMMARY

This chapter summarizes the major findings, implications in the field of nursing education, nursing practice, nursing research, limitations and recommendations. The study was conducted to assess the effect of acupressure on blood sugar among patients with type 2 diabetes mellitus.

The present study was conducted for 30 days at Ashwin Hospital, Coimbatore. A quasi experimental design was adopted and purposive sampling was used to select the samples. Total number of participants selected for the study was 30.

THE FOLLOWING OBJECTIVES WERE SET FOR THE STUDY

- To assess the blood sugar level among patients with type 2 diabetes mellitus.
- To apply acupressure among patients with type 2 diabetes mellitus.
- To evaluate the effectiveness of acupressure among patients with Type2 diabetes mellitus.

The Alternative Hypothesis Set for the Study

The acupressure has a significant difference on reducing the level of blood sugar among patients with type-II diabetes mellitus in experimental group than in control group.

MAJOR FINDINGS OF THE STUDY

- The demographic data of patients with Type 2 diabetes reveals that among experimental group 53% of patients are males and 47% of patients are females. In control group 47% of patients are males and 53%of patients are females.
- The distribution of diet history reveals that 67% of participants are non-vegetarian and 37% are vegetarian
- The majority of participants are recently diagnosed with Type 2 diabetes mellitus.
- Among the patients ,73% are non-smokers.
- Acupressure was effective in reducing the blood sugar among patients with Type2 diabetes mellitus. There was a significant reduction in blood sugar in post-test scores of experimental group compared to pre-test.
- An average variation of 50-100mg/dl of reduction was found in the blood sugar level among experimental group.

CONCLUSION

The study was conducted to find the effect of acupressure on blood sugar among patients with type 2 diabetes mellitus. Most of the patients were cooperative and there was a significant reduction in the blood sugar level. Hence, the study effect of acupressure on blood sugar among patients with Type2 diabetes was effective.

NURSING IMPLICATIONS

Nursing education

People with diabetic mellitus receive various methods of treatment. To manage the symptoms effectively many are turning to alternative therapies like herbal medicines and various other topical agents. Among these therapies, Acupressure is one of the most popular alternative therapies. In the field of nursing education, the administration of acupressure is effective in preventing complications associated with diabetes in the early stage itself. Thus, it is appropriate to incorporate alternative therapies like acupressure into nursing education.

Nursing administration

The nurses should be trained in implementing acupressure therapy to bring out positive physical and psychological responses as an adjunctive to other pharmacological treatment to promote comfort and well being among type 2 diabetes mellitus patients.

Nursing practice

The nursing practice emphasizes the need to focus more on the evidence based and holistic practice by understanding the various techniques that can bring about significant positive and psychological outcomes for patients with type 2 diabetes mellitus.

Nursing research

The nursing research intends to offer upto date suggestions in implementing the alternative treatments like acupressure application as one of the nursing intervention for diabetes which is an affordable and effective way of treating the condition.

LIMITATIONS OF THE STUDY

- Acupressure treatment was not recommended to be given within two hours of
- taking any drug.
- Acupressure treatment should not be taken immediately after meals or on full stomach. The treatment should be taken two hours after meals.
- The study was confined to a shorter period which limits the generalization.

RECOMMENDATIONS

- The intervention can be reinforced as a regular practice in hospital settings.
- Similar study can be replicated in other settings.
- An extensive experimental study can be conducted for larger number of samples in the health care settings.
- A comparative study can be done with one group receiving acupressure along with medical treatment and another group receiving acupressure alone as a treatment modality for diabetes.
- Acupressure can be used along with the medical management among patients who are found to be pre-diabetic during the treatment period in hospitals.

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ABSTRACT

Statement of the Problem : The effectiveness of Acupressure on Blood Sugar among patients with type 2 diabetes mellitus at Ashwin hospital, Coimbatore. **Study Objectives :** (a) To assess the blood sugar level among patients with type 2 diabetes mellitus. (b) To apply acupressure among patients with type 2 diabetes mellitus. (c) To assess the blood sugar level among patients with Type2 diabetes mellitus after acupressure. **Methodology :** An interventional study was conducted to evaluate the effect of acupressure on blood sugar among patients with Type 2 diabetes mellitus. A Quasi experimental pre-test post-test with control group design was adopted. A non probability purposive sample of 30 patients with Type2 diabetes mellitus was selected in which 15 were in experimental group and 15 were in control group. Acupressure therapy was administered to interventional group. Glucometer was used as the tool to assess the level of blood sugar before and after acupressure therapy. **Results :** 30 samples were enrolled in the study. The inferential statistics and descriptive statistics were used to analyse the values. The calculated 't' value (7.38) for the experimental group were higher than the table value, which highlighted that acupressure had a significant effect on blood sugar among the patients with type 2 diabetes mellitus in experimental group. **Conclusion :** The intervention provided shows significant reduction in blood sugar among the patients with type 2 diabetes mellitus. The post test blood sugar level was reduced among experimental group.

PPG COLLEGE OF NURSING

(A Unit of P. Perichi Gounder Memorial Charitable Trust)
An ISO 9001 : 2008 Certified Institution
Affiliated to The Tamilnadu Dr. MGR Medical University, Chennai
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✆ : 0422 - 2669000 Fax : 0422 - 2669333 E-mail : ppgcollege@gmail.com **Website : www.ppg.edu.in**

To

Through
The Principal,
PPG College of Nursing
Coimbatore – 35.

Respected Sir/Madam,

Sub: Seeking Permission for conducting research study

I am a student of M.Sc Nursing in PPG College of Nursing. Our College is affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai. I have taken the specialization in Medical Surgical Nursing

Topic : A STUDY TO ASSES THE EFFECTIVENESS OF ACUPRESSURE ON BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES MELLITUS AT ASHWIN HOSPITAL, COIMBATORE.

I request you to kindly permit me to conduct my study in hospital. Hope you will consider my requisition and do the needful.

Thanking you,

Date : Yours Sincerely,

Place :

REQUISITION LETTER FOR CONTENT VALIDITY

From

M.Sc (N) II Year,

PPG College of Nursing,

Coimbatore – 35.

To

Through : The Principal ,PPG College of Nursing

Respected Sir/Madam,

Sub : Requisition for expert opinion and suggestion for content validity of tool

I am a student of M.Sc (N) II Year, PPG College of Nursing. Our College is affiliated to the Tamilnadu Dr.M.G.R Medical University, Chennai. As a partial fulfillment of the M.Sc (N) programme. I am conducting.

A STUDY TO ASSESS THE EFFECTIVENESS OF ACUPRESSURE ON BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES MELLITUS AT ASHWIN HOSPITAL, COIMBATORE.

Herewith I have enclosed the developed tool for content validity and for the expert opinion and possible solution. It would be very kind of you to return the same as early as possible.

Thanking you,

Yours Faithfully,

PPG COLLEGE OF NURSING

FORMAT FOR THE CONTENT VALIDITY

Name of the expert :

Address :

Total content for the tool :

Kindly validate each tool and tick wherever applicable

S.No	No. of Tool/Section	Strongly Agree	Agree	O.K	Not Applicable	Need Modification	Remarks

Remarks Signature of the expert with date

LIST OF EXPERTS

1.Dr.PADMAJA.,M.D.,
Department of Medicine,
Ashwin Hospital,
Coimbatore.

2.Prof.KUZHANTHAVEL
KMCH College of Nursing,
Coimbatore.

3.Prof. FUELA
Sri Ramakrishna College of Nursing,
Coimbatore.

4.Prof. K.RAJI
Vice Principal,
K.G.College of Nursing,
Coimbatore.

5.Prof. KAVITHA
Vice Principal,
Ganga College of Nursing,
Coimbatore.

6.Prof. B. LAVANYA
Principal,
BRS College of Nursing,
Punjab.

DEMOGRAPHIC PROFILE

I. BASELINE DATA

a) Sample Number

b) Age

c) Gender

d) Educational status

e) Occupation

II. HEALTH HISTORY

a) History of present illness

b) History of past illness

c) Medications

1.Insulin injection

2.Hypoglycemic agents

3.Complementary therapies undertaken

d) Family health history

e) Personal history

f)Diet

1.Timing

2.Frequency

3.Type of food

g) Habits

III. ANTHROPOMETRIC MEASUREMENT

1. Height : cm

2. Weight : kg

IV.INVESTIGATION

S.NO	TEST PERFORMED	PATIENT'S VALUE	NORMAL VALUE	REMARKS

PROTOCOL FOR ACUPRESSURE

INTRODUCTION

Applying gentle pressure on precise acupoints called acupressure is believed to stimulate the central nervous system to release chemicals into the muscles, spinal cord and the brain. These chemicals release hormones that influence the body's natural healing abilities and promote physical and emotional wellbeing. Thus the blood sugar level normalizes without any negative side effects, but with positive effects

DEFINITION

It refers to the application of acupressure over the acupoints Spleen 6, Liver 3, Kidney 3 & Stomach 40 for 5 minutes on each acu point located on the leg twice a daily for reducing the blood sugar level.

ACUPRESSURE TOOL

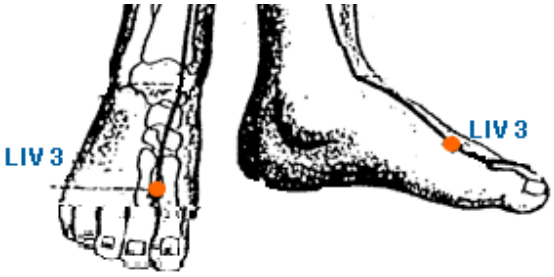
Acupressure Points	Procedure	Duration	Frequency
Sp – 6	slight clock wise circular motion on each leg.	3-5 min	Daily twice
Liv– 3	Slightcounter- clockwise circular motion on each foot.	3-5 min	Daily twice
K-3	Slight clockwise circular motion on each ankle.	3-5 min	Daily twice
St-40	Slight clockwise circular motion for on each ankle.	3-5 min	Daily twice

INTERPRETATION OF ACUPRESSURE TOOL

Spleen 6 (Sp-6) Diabetes Acupressure Point

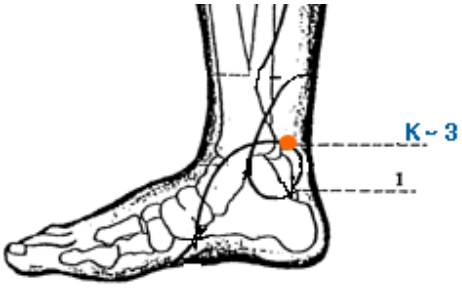
Location: On the inside of the lower leg, one hand width (4 Fingers) above the tip of the ankle bone, on the back of the shin bone.

Liver 3 (Liv -3) Diabetes Acupressure Point



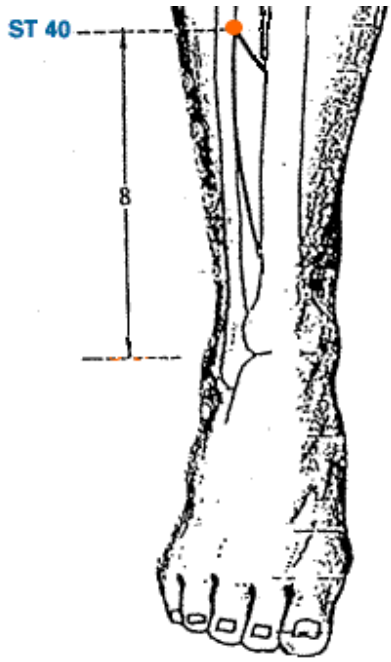
Location: On the foot on the line between the big toe and the second toe. The point is located about 3 finger width from the edge, in the depression.

Kidney 3 (K-3) Diabetes Acupressure Point



Location: On the inside of the foot, half way between the Achilles – tendon and the ankle bone.

Stomach 40 (St-40) Diabetes Acupressure Point



Location: On the anterior aspect of the lower leg, 8 Fingers superior to external malleolus.

INTERPRETATION OF THE TEST

The interpretation of tool is based upon the blood sugar values of the patient at different times.

S. No.	Bloodsugar	Normal	Diabetic
1.	Fasting blood sugar	70-110mg/dl	Above125mg/dl
2.	Postprandial blood sugar	80-150mg/dl	200 & above 200 mg/dl
3.	Randomblood sugar	70-140mg/dl	200 & above 200 mg/dl

ADMINISTRATION OF TEST

The acupressure points for reducing the blood sugar are Liv-3, St-40, Sp-6, K-3.Atfirst, the blood sugar level of the patient is assessed through pretest. Then acupressure is administered as intervention. Followed by that, post test is performed by checking the random blood sugar for knowing the variations.

SECTION-C

INSTRUCTIONS FOR ACUPRESSURE

1. Acupressure treatment should not be taken immediately after meals or on full stomach. The treatment should be taken one and a half hour to two hours after meals
2. If pressure is to be applied on 3 or 4 points located close to one another, 4 fingers can be used simultaneously
3. Only moderate pressure should be applied if the acupoint area has the following characteristics such as acute pain, swelling, flabby muscles and for organ damage.
4. Hard pressure is applied :
   a. If the disease is chronic
   b. If the patient is not suffering from other complications of diseases
   c. If the patient is not very tired.
1. The nails of the thumbs & fingers should be properly dipped and smoothened in order to avoid any injury or on the skin, while pressing the points.
2. Under conditions such as fatigue, profuse perspiration, rapid heart beats; the acupressure should be postponed till the normal condition is regained.
3. One should not take acupressure treatment within two hours of taking any drug.
4. One should not take acupressure treatment within half an hour after bathing in hot water.
5. In ordinary circumstances acupressure treatment is not recommended during pregnancy.
6. Acupressure treatment should not be taken on the part beneath which a bone is fractured on account of some injury.

7. If one's vertebrae are seriously injured or if one is suffering from sciatia, one should not take acupressure treatment on that part of the spine.

PRE-PROCEDURE

1. Make the patient comfort.
2. Explain the steps of procedure.

SCHEDULE FOR ACUPRESSURE

S. No	Date	Time of intervention	Duration	Assesment of blood sugar		Remarks
				Before acucpressure	After acucpressure	
		MORNING				
		EVENING				

PROCEDURE

1. Wash hands.
2. Advice the patient to lie on the bed.
3. Check the random blood sugar of diabetic patients.
4. Followed by that, acupressure intervention will be started.
5. The different acupoints in the body which reduces the blood sugar are:

a. On the inside of the lower leg, one hand width (four fingers) above the tip of the ankle bone, on the back of the shin bone. This point is Sp6.

b. Next point is on the foot, on the line between the big toe and the second toe. The point is located about 3 finger width from the edge, in the depression. This point is Liv-3.

c. Third point is on the inside of the foot, halfway between the Achilles tendon and the side of the ankle bone. This point is K-3.
d. Fourth point is on the anterior aspect of the lower leg, 8 fingers superior to the external malleolus.

6. Pressure is applied over these points, in circular motion for 3-5 minutes daily twice.
7. Acupressure should be applied only after one and a half hour to two hours after meals.

8. The method of administering pressure: Administer pressure for 6 to 7 seconds, and then release the pressure, after 6 to 7 seconds again apply pressure. This should be repeated for 3-5 min on each point daily twice.
9. After acupressure, random blood sugar will be assessed, to know the variations.

POST-PROCEDURE

1. Wash hands.
2. Assess the skin for any changes.
3. Assess the blood sugar level of the patient using glucometer.
4. Record the procedure with date, time and observation.

A STUDY TO ASSES THE EFFECTIVENESS OF ACUPRESSURE ON BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES MELLITUS AT ASHWIN HOSPITAL, COIMBATORE.

AL SHIFA ACUPRESSURE CENTERE

Attingal to Nedumangad Road, Avanavancherry, Attukal, Kerala
695103, Phone: 04734 224425, Mob No: 9497104425
Email: alshifasafecare@gmail.com : Reg No: 7558/14

Ref No: Cef 175/03-14

CERTIFICATE

This is to certify that

K. NITHYA .....has

undergone Acupressure Therapy course and successfully completed the theory,

practical examination in February 2014.

Date: 01/03/2014

DIRECTOR

Dr. SHABEER.C P
Ph.D (Alt.Med) REG: 9785
DIRECTOR